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THE TOXEMIAS OF PREGNANCY FROM AN OPHTHALMOLOGIC STANDPOINT *

ROBERT CARTWRIGHT CHENEY, M.D.

BOSTON

In 1855, von Graefe first described the retinitis of pregnancy. Since then many cases have been reported, but for the most part singly, as the condition is not common. The first large series (thirty-five cases) was reported by Silex,[1] in 1895. This author believes that retinitis occurs once in about every 3,000 pregnancies, but states that cases found in large clinics are of a severer nature, with the result that there is a much higher percentage in this class. Schiötz,[2] for instance, in his series from the Christiana clinic, found retinitis once in every 240 pregnancies. Other series have been reported by Burnier, Rochon-Duvineaud and others.

OCCURRENCES IN PRIMIPARAS AND MULTIPARAS

At one time there was the feeling that retinitis was more common in primiparas. This, however, has not been borne out, as Burnier [3] has found in the literature fifty-one primiparas and sixty-eight multiparas with retinitis. In seventeen cases reported by Leber,[4] ten were primiparas. Nettleship,[5] in nineteen cases, found only four primiparas, and he states that in most of his cases the eye changes did not occur till after several pregnancies. In Schiötz' series, sixteen were primiparas and twenty-four multiparas. Thus, the condition is more common in multiparas, if anything.

TIME IN PREGNANCY AT WHICH RETINITIS OCCURS

Fundus changes are most common in the latter three months of pregnancy. This is perhaps best illustrated by the following statistics:

In 119 cases reported by Burnier, the eye-findings were 21 per cent. before 6 months; 38 per cent. in from 6 to 7 months; 33 per cent. in from 8 to 9 months, and 8 per cent. post partum.

Cases have been reported as occurring as early as the third or fourth month; however, in Schiötz' series there were three cases in the sixth month; eleven in the seventh month; fifteen in the eighth month; eight in the ninth month, and three post partum.

RECURRENCE OF THE RETINITIS OF PREGNANCY

One would be inclined to expect that the retinitis of pregnancy would recur in succeeding pregnancies; yet Schiötz in his series did not find one recurrence. There are undoubtedly recurrences, but cases actually confirmed by ophthalmoscopic examination are exceedingly rare. In a series of nineteen recurrences cited by Rochon-Duvigneaud,[6] in only six cases were there definite ophthalmoscopic findings. Practically, it seems that most of the cases in which retinitis occurs are of two types: (1) the acute toxemias of pregnancy, which do not recur, and hence in which the retinitis does not recur; (2) chronic nephritis. Now, if a case of chronic nephritis is severe enough to cause retinitis, this will without doubt be just the type of case in which the obstetrician will in every way try to prevent subsequent pregnancies, and consequently recurrences will not be found. If patients with chronic nephritis were allowed to become pregnant and did not spontaneously abort at a relatively early date, as is often the case, I believe that recurrences of the retinitis would be much more frequently found.

So much for the more or less general aspects of the situation. In reviewing the literature, one is struck very forcibly by the great lack of correlation of the obstetric and ophthalmologic points of view. The fundus changes in the toxemias of pregnancy have been studied and restudied, but in most cases, with some notable exceptions, such as Schiötz' series, one is struck by the fact that the observations lose a great deal of their potential value, because the eye findings are projected in the form of a more or less independent ophthalmologic unit, which fails to take into account sufficiently the various complicated subdivisions of the toxemias of pregnancy. In considering the fundus changes in pregnancy, indeed, one is rather led into a blind alley, unless an effort is made by the ophthalmologist to consider the matter from the obstetrician's point of view. An obstetrician with a sick woman on his hands is often in doubt as to what course to pursue, and, if the eye findings can give him a lead or substantiate other findings, they are, of course, of distinct value to him. Otherwise, they are only of academic interest. In order to be in a position to get a proper perspective, it is necessary to have an idea of the toxemias of pregnancy as the obstetrician has to deal with them.

The toxemia of pregnancy is a complicated subject about which there still remains much to be learned. There are various classifications, none of which are perfectly satisfactory. Recently, at the Boston Lying-In Hospital, great efforts have been made to study the toxemias, and many valuable suggestions have been made by various members of the staff. The term "eclampsia" is purposely avoided as it simply means a severe state of toxemia, usually of the later months of pregnancy, and usually accompanied by convulsions.

* Read before the Section on Ophthalmology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Silex, P.: Berl. klin. Wchnschr., 1895, p. 385.
2. Schiötz: Klin. Monatsbl. f. Augenh., 1921.
3. Burnier: Albuminurie gravidique et troubles oculaire, Thèse de Paris, 1911.
4. Leber: Hanab. d. ges. Augenh. (Graefe-Saemisch) 7: 905, 1915.
5. Nettleship: Observations on Renal Retinitis, Royal London Ophth. Hosp. Rep. 5: 15.
6. Rochon-Duvigneaud: La rétinite albuminurique, Soc. franç. d'ophth., cong., 1912.

The etiologic factor in all cases is not necessarily the same. The following classification is, I believ , one of the most practical:

1. *The Acute Toxemias of Pregnancy.*—These form a rather definite clinical entity. This form of toxemia is commoner in primiparas, usually occurring in the latter months of pregnancy. The onset is rather sudden, generally accompanied by such premonitary symptoms as headaches, malaise, spots before the eyes, and transitory loss of vision, followed by convulsive seizures. The urine is scanty in amount, and often "boils solid" with albumin. Labor usually occurs spontaneously, and, if the patient survives, the urine becomes normal in a relatively short time. Health is regained and subsequent pregnancy may take place *without fear of a recurrence of the toxemia.* At necropsy these cases show characteristic hemorrhagic liver changes with thrombosis and necrosis, and cerebral hemorrhages. Kosmak [7] states that the kidney changes are entirely different from the nephritic type, which is next to be considered. The kidney, not diminished in size, is anemic in appearance with cloudy cortex, and often shows small ecchymoses. Microscopic examination shows degenerative changes in the epithelium and vessels. The interstitial tissues are little changed, the process involving mostly the parenchyma of the organs. In other words, the kidney picture is that of an acute toxemia and not of chronic nephritic changes of long duration.

The exact etiology of the acute toxemia is not definitely known, and many theories have been advanced. Newell [8] believes that it is a true toxemia caused by the absorption of products from the uterine contents. Thus, one sees this type of toxemia in cases of hydatidiform mole. It seems probable that the kidney lesions are simply secondary to the toxemia and are not the cause of it, as some authors contend. Another interesting point is that the secondary kidney damage may be severe enough to cause permanent changes, so that in ensuing pregnancies the patient may have a true nephritis.

The treatment in the acute toxemias varies greatly with the individual patient, but in general the tendency is to end the pregnancy more quickly in this type of case than would be considered necessary in a case of chronic nephritis in which the chance of sudden convulsive seizures would perhaps be less great.

2. *Chronic Nephritis.*—These cases include the women who before pregnancy had chronic nephritis, quite often unsuspected, and in whom the extra burden of pregnancy causes the process to become severer. The clinical picture here is often as follows:

The onset is gradual, which distinguishes it from the acute toxemias. Appearing usually in the second half of pregnancy, this form of toxemia is likely to be associated with multiple pregnancies. The symptoms are more or less those of chronic nephritis. The urine does not, as a rule, contain as much albumin as it does in the acute toxemias, and it contains more casts and cellular elements. Of course, if convulsions supervene, the urinary picture will be that of an acute toxic nephritis.

At necropsy, the kidney picture is entirely different from that in the acute toxemias. Here we find, according to Kosmak, a chronic interstitial inflammation with constriction, and obliteration of the cortex and the vessels. Diminution in size and sclerosis are the predominant features of the kidney of nephritis.

Now, from a practical point of view, cases of this type are very different from the acute toxemias. In the first place, the nephritis does not, as a rule, clear up entirely after pregnancy. The blood pressure remains abnormally high, and there are casts, and varying amounts of albumin persisting in the urine. These patients are left with chronic nephritis. If these women become pregnant again, the toxemia recurs, and more damage to the kidney ensues. As Williams has pointed out, the nephritic patients are apt to give birth to premature infants either dead at birth or soon after. The placenta shows, as a rule, many infarcts. The chances of a living baby in this type of toxemia, if at all severe, are thus relatively poor. It is perhaps safer to carry these cases longer than those with acute toxemia, as they will usually give more warning before the convulsions.

3. *A Third Type of Toxemia.*—Recently described by Foster Kellogg [8] is the so-called "recurrent toxemia of pregnancy." This is the type of case in which there is a toxemia with urinary changes, high blood pressure, etc., in succeeding pregnancies. Between pregnancies, in contradistinction to the chronic nephritis, the urine is absolutely normal, and no evidence of kidney changes can be found on the most careful clinical examination. Certain of these patients, if carefully handled, can go through pregnancy successfully.

Whether this group is really a distinct entity or whether these patients should be classed as persons who have not enough kidney reserve power to stand the extra load of pregnancy, but have entirely adequate kidney function for everyday needs, is not determined, as we really have no means of properly measuring the reserve power of the kidneys. Supposing the latter theory to be correct, this class would really be a subdivision of the cases of nephritis. Of course, as previously stated, there are certain cases of toxemia which cannot be placed in one of these three classes. However, in dealing with a subject like this, I believe it is important to have a more or less definite classification, as a working basis at least.

Recently, Schiötz [2] has published a carefully compiled series of cases which have been followed up for several years and thoroughly studied. From 1916 to 1921, in the Christiania clinic, out of a total number of 8,400 women, he examined the eyes of 680. All patients with definite toxemias, all with subjective eye symptoms, and all showing an abnormal amount of albumin were examined. Forty cases of retinitis were found in those patients, which he grouped in the following way:

A. Ten patients who had chronic nephritis before pregnancy and who, after delivery, showed persisting signs of nephritis. In all these cases, high blood pressure with albumin persisted, some of the patients being followed up for as long as four years. Five had convulsions during pregnancy, two showed signs of uremia, and three died of nephritis from six months to two years afterward.

B. Seventeen patients who, although they did not give definite evidence of nephritis before pregnancy, nevertheless after delivery suffered from chronic nephritis. Of these patients, ten undoubtedly belonged to Group A, as in the prenatal clinic they were at least suspected to have nephritis, as was well borne out by their postpartum behavior. In the follow-up, most of them had blood pressure ranging from 170 to 220, with positive urinary findings, and in two or three instances

7. Kosmak: Toxemias of Pregnancy, New York, D. Appleton & Co., 1922.
8. Personal communication to the author.

in which the blood pressure was fairly low, there were nevertheless casts and albumin in the urine.

C. Six patients who neither before nor after pregnancy showed evidence of nephritis. With the exception of one woman, all this group had eclampsia or were threatened with it. Two of the patients became pregnant again without any recurrence of their symptoms. It is also interesting to note that seven cases of retinitis were not followed up and so were not considered.

In all, there were thirty-three cases of retinitis carefully studied and followed up.

Group A (ten cases) falls, of course, under the head of chronic nephritis.

Group B (seventeen cases) ended as chronic nephritis. Ten patients, to start with, were suspected of having chronic nephritis. This group also falls under the head of chronic nephritis.

Group C can be placed in the group of the acute toxemias.

From the data on hand, none of the cases can be placed in the recurrent toxemia group. In short, 82 per cent. of the patients with retinitis had chronic nephritis, and 18 per cent. had acute toxemia.

Quite naturally, the obstetricians are interested, not in the eye findings per se, but in their ability to help determine the etiology, prognosis and treatment of the various toxemias in which they occur. These points will next be considered.

DANGER OF PERMANENT VISUAL DAMAGE

The danger of permanent damage to the vision is of considerable importance. Serious impairment of vision or blindness is a large price to pay for a baby that is quite apt to be dead (Burnier [8] reports an infant mortality of 79 per cent. in women showing extensive fundus changes). The reality of the danger to the mother is well illustrated in the following:

Burnier reports 44 per cent. of the women with retinitis as being blind or having greatly reduced vision, the mortality being 13 per cent. In Silex's [1] series, only 65 per cent. of the patients with retinitis had sufficient vision to permit reading. Rochon-Duvigneaud's [6] statistics showed 28 per cent. with normal vision, 58 per cent. with definite visual damage, and 14 per cent. blind. In Schiötz' [2] series of forty cases, fourteen patients had normal vision, eighteen had diminished vision, and one was blind. The onset of fundus changes may be extremely insidious, and the subjective symptoms are by no means a reliable guide. The patient may see spots before her eyes and note a diminution of visual acuity, but this is not always the case. There may be quite extensive fundus changes and yet the patient will still have normal vision, provided the macular region is not extensively involved, and thus the danger lies in the ever present possibility of this region becoming suddenly damaged. If one waits till the patient complains of greatly damaged vision, one is taking unwarranted chances. Cases of retinitis have been reported with negative urinary findings. Practically what it amounts to is that if a toxemic patient shows a retinitis fairly early in pregnancy, one can be reasonably sure that she will have very badly damaged vision if she is allowed to continue the pregnancy and does not abort spontaneously. If the retinitis comes on in the last week or so, the prognosis is better and the fundi will probably clear up well after delivery; but even in these cases the fundi and vision should be carefully checked up and labor induced if necessary.

EYE FINDINGS IN RELATION TO ETIOLOGY, PROGNOSIS AND TREATMENT

In the past there has been a good deal of discussion as to whether retinitis was more commonly found in acute toxemia or in chronic nephritis. There are numerous examples of cases of retinitis of pregnancy in which the patient either had or developed a chronic nephritis. Silex, on the basis of his rich material, came to the conclusion that most of the retinitis cases occurred in patients with acute toxemia, with a good prognosis for life. However it cannot be gathered from his statistics whether or not special emphasis was laid on the general clinical investigation of the patients. A patient with chronic nephritis, with abnormal blood pressure and urine, can feel quite well and carry on, with the result that only a careful investigation will reveal the true state of affairs. Others followed the lead of Silex, rather neglecting chronic nephritis as the etiologic factor. In later years, the importance of more careful clinical examination being realized, the pendulum has rightly swung the other way. Miller [9] believes that fundus changes are an important diagnostic point in favor of chronic nephritis, and Zangemeister [10] believes that the appearance of an albuminuric retinitis in pregnancy is always a sign of chronic nephritis. Krückman [11] does not believe that a patient gets retinitis in an acute toxemia, and considers that retinitis indicates actual kidney degeneration. Wolff and Zade [12] followed up their cases with greatest care post partum. In their series they found thirteen patients with albuminuric retinitis, ten of whom proved to be suffering from a chronic nephritis. Schiötz, as previously mentioned, out of thirty-three patients with retinitis, found twenty-seven with a chronic nephritis post partum, seventeen of whom undoubtedly had a preexisting chronic nephritis. The other ten may perhaps be considered as having acute toxemia, which developed into chronic nephritis. Therefore, it seems that the following conclusion is logical, namely, if a toxemic patient shows a retinitis, the chances are four to one that she has nephritis, and should be carefully followed up for over a year, not being placed in the acute toxemic class and allowed to become pregnant again, unless urine, blood pressure, etc., were absolutely normal during this period. The immediate prognosis for life of patients showing retinitis is good in many cases in that, if properly handled, the nephritic patient may live for years; but in the long run the prognosis is poor. The prognosis is, of course, better than in nonpregnant patients with nephritis, for here one cannot relieve the load on the kidneys by ending the pregnancy, and most patients die within a year or so. If the retinitis persists for a considerable length of time, postpartum, the prognosis is naturally much worse.

TREATMENT OF PATIENTS WITH RETINITIS

There is, of course, absolutely no criterion, and every case should be judged on its own merits; but, in general, if the retinitis is discovered at any time previous to the last two weeks or so of the pregnancy, the pregnancy should be terminated.

Such statistics as the following certainly bear this out. Rochon-Duvigneaud,[6] in a series of cases showing extensive fundus changes found:

9. Miller, quoted by Schiötz (Footnote 2).
10. Zangemeister: Arch. f. Gynäk. **66**: 413, 1902.
11. Krückman: Verhandl. Heidelberg Ophth. Gesellsch., 1907, discussion on Schieck.
12. Wolff and Zade: Monatsch. f. Geburtsh. u. Gynäk. **40**: 639, 1914.

Of fifty-three patients who were allowed to finish the pregnancy, eight died and eleven were blind (15 per cent. dead and 20 per cent. blind); ten patients obtained normal vision.

Of thirty-four patients who miscarried spontaneously, four died and four were blind (12 per cent. dead and 12 per cent. blind); ten patients obtained normal vision.

Of sixty-eight patients whose pregnancy was interrupted, three died and four were blind (4 per cent. dead and 6 per cent. blind); nineteen patients obtained normal vision.

The fundus lesions in the toxemias are well known and do not warrant routine description in a paper of this sort, but I do feel that the genesis of these changes is a most interesting and important subject. It is also one that will naturally involve the subject of nephritis, as it is probable that there is a close relationship. Schieck [13] gives a good summary of our present knowledge of the genesis of albuminuric retinitis. According to this author there are two possibilities:

1. The blood may carry toxic substances to the retina, causing changes—the toxic theory.

2. The retinal condition may arise secondarily to changes in the circulatory system. The latter condition might be arrived at in two ways—the increase in blood pressure and the slowing of the circulation leads to hemorrhages and tissue changes, or the cutting off of the nutrition by vascular changes leads to a secondary degeneration. In brief, this may be termed the mechanical theory.

The toxic theory, which is favored especially by many of the French authors, is that the retention of nitrogenous waste products in the blood (so-called nitrogen retention) causes the retinal changes by a direct local toxic action. Widal has even gone so far as to use the term retinitis azotaemica.

Stopping for a moment to consider nephritis, it is rather noticeable that the modern trend among clinicians is to break away from the classical and old terminologies, and consider the cases more from the point of view of blood chemistry, with reference to salt retention, nitrogen retention and the like. The excretion of chlorids and the excretion of nitrogen appear to be independent kidney functions, and their relative impairment varies in the different types of nephritis. In nephritis of the interstitial type one sees impaired nitrogen excretion, but the chlorid content of the blood remains fairly normal. In parenchymatous nephritis, on the other hand, the nitrogen retention is not marked, but one encounters a chlorid retention with accompanying edema—the so-called salt nephritis. How is this borne out in the toxemias of pregnancy?

Killian [14] has carried out extensive blood analyses in the various types of toxemias with extremely interesting results. In the first place, he reported the blood analyses in seven cases of nephritic toxemia. Of these cases, five showed a marked nitrogen retention, but the interesting feature was that the urea nitrogen formed a much larger component of the total nonprotein nitrogen than in normal blood (50 per cent. is the normal upper limit of the urea component). Four of these cases showed a neuroretinitis. Thus, five patients presented the picture found in nonpregnant women with nephritis of the interstitial type. The last two patients (one of whom showed a neuroretinitis) had no marked increase in the nonprotein and urea nitrogen, but did show a very marked chlorid retention with edema, having thus nephritis of the parenchymatous type.

The blood picture in the patients with acute toxemia also showed quite characteristic changes. The total nonprotein nitrogen was increased, but the interesting point here was that in most cases the urea nitrogen was normal or diminished in amount, which, it will be recalled, is just the opposite of the condition found in the nephritic patients with nitrogen retention. It is not known just what component of the total nonprotein nitrogen is increased. In a few cases there was also a chlorid retention.

Couvelaire [15] reports a case of nephritis with retinitis, hypertension, etc., without nitrogen retention. Brindeau, in the discussion, mentions a similar case. Schiötz [2] investigated the blood chemistry in eleven of his patients with toxemia and retinitis, and found nitrogen retention marked in one, and slight in four. Hanssen and Knack [16] credit the toxic theory, but deny that the nitrogenous products are the only poisonous agents, as they observed a severe case of neuroretinitis in which there was no nitrogen retention. So much for the toxic theory. Retained nitrogenous products are certainly not the essential toxin, as there can be retinitis with chlorid retention. There may be some toxic substance, as yet not isolated. There can be a typical star shaped figure of albuminuric retinitis in choked disk due to increased intracranial pressure—a thing very hard to understand if one credits the toxic theory to any great extent.

HYPERTENSION

Next let us consider the mechanical theory, and, as a preliminary, certain matters in relation to the genesis of hypertension, which is an important element in this theory. Bright, in describing the condition known as cardiorenal disease, advanced the theory that a change in the quality of the blood occurred which stimulated the heart action, causing cardiac hypertrophy. Furthermore, he thought the toxic blood might cause capillary constriction, forcing the heart to work harder to maintain circulation.

The theory of Cohnheim, on the other hand, was that the caliber of the renal vessels depends on the amount of urinary constituents (urea, water, etc.) in the blood. If these constituents are increased, a contraction of the renal vessels takes place, so that, if the amount of blood passing through the kidneys is to remain the same, a rise in blood pressure must occur.

According to Hewlett,[17] the hypertension of acute nephritis, eclampsia and uremia is probably not due to anatomic changes in the heart or blood vessels, but is due to a general constriction of the systemic arterioles, which is due to the action of some toxic substances. In the cases in which there is a chronic nephritis and arterial changes of an organic nature, the obstruction in the smaller arteriorles would be simply organic rather than functional. Likewise, the hypertension due to acute cerebral compression is caused by a stimulation of the vasomotor center by local lack of oxygen and accumulation of carbon dioxid, with resulting arteriolar and capillary constriction and rise in blood pressure. In nephritis and the toxemias, the question arises as to whether the arteriolar constriction is a protective reaction to force blood through constricted kidney vessels or whether it is the result of the action of a blood-borne toxin either directly on the blood vessels or on the vaso-

13. Schieck: Klin. Monatsbl. f. Augenh., 1921.
14. Killian, in Kosmak: Toxemias of Pregnancy, 1922.
15. Couvelaire: Gynéc. et obst., 1920, p. 305.
16. Hanssen and Knack: Klin. Monatsbl. f. Augenh., 1917, p. 262.
17. Hewlett: Pathological Physiology of Internal Diseases, New York, D. Appleton & Co., 1917.

motor center which causes a simultaneous vasomotor constriction in the kidneys, retina and other parts of the body.

Lawrence,[18] in investigating the relation of hypertension to urinary excretion, goes far toward settling this question. Summing up the results of animal experimentations by various workers, he states that it has been found that (1) high blood pressure is not caused by increased resistance to the flow of blood through the kidneys, and (2) high blood pressure does not cause an increased flow of blood through these organs.

In his own investigations in a large number of cases, he found that (1) no definite relation could be established between changes in the systolic and diastolic pressure per se, and urinary output, and (2) there appeared to be a definite relation between changes in the pulse pressure and the urinary output; for whenever the former increased in the presence of a falling systolic pressure, there was a diuresis. Therefore, according to Lawrence, not increased blood pressure, per se, but increased pulse pressure causes increased efficiency of circulation in the kidneys, which, according to Fischer's theory, gives rise to increased oxygenation and a better urinary output.

Thus, hypertension is not a protective reaction, in acute conditions at least, but is due to a general simultaneous arteriolar contraction in kidneys and other parts of the body as well as in the retina, a point to bear in mind in the following considerations, as it supports the theory of retinal ischemia advanced by Volhard, and tends to show that the retinal changes, instead of being secondary to those in the kidney, occur simultaneously with them.

THE MECHANICAL THEORY

As we have a slight knowledge of hypertension, the mechanical theory remains to be considered. Michel[19] stated that albuminuric retinitis is only the result of a primary arterial and venous sclerosis of the central vessels of the retina. However, Schieck[20] found two severe cases of retinitis lacking evidence of a primary arteriosclerosis.

Volhard[21] believes that retinal changes occur only in the cases of nephritis in which there is a high blood pressure. Retinal changes are certainly most common in chronic interstitial nephritis, in which high blood pressure is almost a characteristic finding, and this author considers that the retinal changes are due to a retinal ischemia. To understand this theory it is necessary to consider in some detail what goes on in the kidney. According to the investigations of Ziegler and Jores,[22] the pathologic anatomy of the contracted kidney (the type of nephritis in which retinitis occurs most commonly) is a primary arteriosclerosis of the smaller kidney vessels, and Volhard thinks that the endothelial proliferation in the glomeruli, etc., is not an inflammatory process, but merely an ischemic or asphyxial reaction in the glomerulus, secondary to a shutting down of a vessel leading to it. The same things hold in relation to the smaller kidney vessels. He believes that where endothelial proliferation of the vessels is found, from the pathologic symptoms alone we can deduce that there has been a slowing or choking of the blood stream. Also, he considers that the fact that the glomeruli are bloodless in acute nephritis shows that a choking off of the blood stream has taken place in the kidneys. If the hypertension remains for any length of time in these cases, organic changes take place in the vessels, etc. Likewise, the hypertension arises from a contraction of the capillary and precapillary vessels, including those of the kidney.

A quite similar happening occurs in the kidney sclerosis of the so-called contracted kidney type. Here the choking of the kidney vessels is not, however, a primary, functional, acute process with secondary organic changes resulting from asphyxial damage to the vessels, but is from the start an organic, chronic condition resulting from a slowly developing intimal proliferation in the kidney vessels.

Thus, in albuminuric retinitis, Volhard considers that there is an ischemia of the retina as well as of the kidney, and that the retinal changes are the result of the arterial ischemia. He has noticed that in every case the retinal arteries were poorly filled, and histologically in chronic cases the same vascular changes were seen as in the kidney vessels—endothelial proliferation, etc. One of the main objections to Volhard's theory is that one finds a certain number of cases of retinitis without any hypertension to speak of. Wesseley,[23] in the cases of trench nephritis that he investigated, found two cases of retinitis without increased blood pressure. It was found, however, that previously in the disease these patients had had a marked hypertension. Schiötz,[2] in recording the blood pressure in seventeen of his cases of retinitis, found four cases in which there was a blood pressure of only 140 to 150. In two of them a high blood pressure at other periods could not be ruled out, however. Horniker[24] published very interesting statistics showing that there is a definite relationship between the height of the blood pressure and the occurrences of retinitis, finding in cases of trench nephritis in which there was blood pressure of 200 or over retinitis in probably 100 per cent. of the cases. Therefore, it can be fairly said in support of Volhard's theory of retinal ischemia that the majority of patients with retinitis have hypertension. Of the ones that do not have it, a certain number have had a hypertension previously, and the "unexplained remainder" may perhaps not have had hypertension because of weak heart action, although an arteriolar contraction may be present, nevertheless. Another explanation of the cases of retinitis without hypertension might be that there was a narrowing of the lumina of the central artery due to organic changes (see Michel's cases) which, although not marked enough to give acute obstruction, could produce a marked retinal ischemia. Before leaving this subject there is another work that I should like to mention, namely, that of zur Nedden,[25] in which he immunized an animal of one species to the kidney extract of another, and, by injecting the serum of the immunized animal into the carotid of an animal of the species from which the kidney extract was obtained, found in the animal so treated retinitis and nephritis. This would at first glance be a distinct proof for the toxic theory. However, on opening the discussion, Goldzieher called attention to the fact that Goldzieher and Molnar had found that, in animals so treated, one could always demonstrate the presence of epinephrin in the blood both chemically and physiologically. He therefore raised the question as to whether the retinal changes observed were not due to the action of epi-

18. Lawrence, C. H., Jr.: Am. J. M. Sc. **164**: 330, 1912.
19. Michel: Ztschr. f. Augenh., 1899.
20. Schieck: Verhandl. Heidelberg Ophth. Gesellsch., 1907.
21. Volhard: Verhandl. Heidelberg Ophth. Gesellsch., 1916.
22. Ziegler and Jores, quoted by Volhard (Footnote 21).
23. Wesseley: Verhandl. Heidelberg Ophth. Gesellsch., 1916.
24. Horniker: Verhandl. Heidelberg Ophth. Gesellsch., 1916.
25. Zur Nedden: Verhandl. Heidelberg Ophth. Gesellsch., 1908.

nephrin on the blood vessels. If epinephrin was present, there must have been a certain degree of retinal ischemia. The latter fact is also borne out by the fact that, when epinephrin is injected into normal young adults and the blood pressure is raised, transient signs of vasoconstriction appear. Therefore it seems that Volhard's theory is still tenable and the present state of our knowledge is the best theory. By it one can explain stellate retinitis, in which at times marked spasm of the retinal arteries is noted, as well as the typical star shaped figure that has been observed in cases of choked disk with hypertension, which it would be impossible to explain on the toxic theory. It seems to me more logical to explain the stellate figure sometimes found in choked disk as due to a retinal ischemia, secondary to general arteriolar constriction plus also local compression of the central artery of the retina, rather than to the edema present, since marked edema alone (as noted in obstruction of the central vein) does not apparently give rise to a star shaped figure.

GENERAL APPLICATION TO THE RETINITIS OF PREGNANCY

In the first place, increased blood pressure is practically regarded as an essential accompaniment of the various toxemias of pregnancy, although cases have been reported without hypertension. Also, the retinitis of pregnancy is practically always an acute affair even in patients with chronic nephritis, in whom there is really an acute flare-up of what is usually a low grade chronic affair. Arteriosclerosis is not found, as a rule, in women of the child-bearing age, and thus if we adhere to Volhard's theory of retinal ischemia we must consider the arterial narrowing to be of the acute functional type and not chronic, with organic changes in the blood vessel walls.

But now the vital question arises as to whether one sees enough in the fundi in the way of vascular changes to support the ischemic theory. Volhard states, as noted previously, that the arteries were not well filled. Silex,[1] in his cases, mentioned a narrowing of the arteries, a change in the central arterial light reflex, a broadening and change in color peculiar and hard to describe. A similar change, he stated, was found in syphilis and in arteriosclerosis. This finding of Silex does not seem to have made much of an impression, and no great importance has been attached to it. Burnier also noted a narrowing of the retinal arteries in his cases.

I have had the opportunity during the last two years to make fundus examinations on practically all the toxemic patients at the Boston Lying-in Hospital, and have tried to ascertain whether it was possible to distinguish the acute toxemic cases from the nephritic cases by vascular changes, thinking that perhaps, as the nephritic cases were more long standing, there might be definite blood vessel changes. I found that most of the women having marked hypertension showed a narrowing and tortuosity of the arteries with slightly increased brilliance of the light streak. This was especially marked in the smaller arteries, around the disk, and in the macula. In short, if seen in a person of 60 years or more, these changes might have been classed as "normal for age." In the young adults in whom they were found, however, they were distinctly abnormal and were, I feel, due to a functional vasoconstriction. The hypertension was the essential factor, and it made no difference whether the cases were of acute toxemia or nephritis. These were the only signs of vasoconstriction that I could distinguish. It is the natural inclination to be rather skeptical as to the presence of a vasoconstriction enough to cause retinal changes without more definite evidence of it on ophthalmoscopic examination, and one wonders why all the patients with hypertension of years' duration and with marked retinal arteriosclerosis do not have retinitis more frequently, as, according to Vollard's theory, retinal ischemia must be present. The thing to be remembered here is that the process has been of slow onset, often taking years to develop, with the result that the retina perhaps has a chance to "compensate," as it were, and to adjust itself to a rather diminished blood supply. Now, in the case of the toxemias of pregnancy, the hypertension comes on rapidly and is often fulminating in its occurrence, so that there must be an acute vasoconstriction of sudden onset which, although it may not cause great visible narrowing of the larger retinal arteries or organic changes, can, by virtue of its sudden onset and rapid increase, cause a retinitis in a retina that cannot adjust itself to a sudden change. In short, the suddenness of the vasoconstriction is perhaps as important as the amount.

The foregoing surmises are, of course, more or less purely theoretical and are thus hard to defend. However, granting all the possibilities of the various theories as to the genesis of nephritic and toxemic retinitis, I feel that Volhard's theory is the best for the present, although far from perfect.

Finally, in view of the difficulty at times of diagnosing the different types of toxemia, the question arises as to whether the fundus picture, per se, will be a help; that is, whether certain types of changes will be characteristic of certain types of toxemia.

As a rule, the retinitis of the acute toxemia of pregnancy is an acute toxic rather than a vascular affair. Fundus changes may vary from a few retinal hemorrhages to the classical picture of albuminuric retinitis. Separation of the retina is not uncommon, and may occur with or without retinitis. On the other hand, the retinitis of chronic nephritis shows more vascular changes, such as narrowing of vessels, increased light streak, and tortuosity—indeed, such changes as one would expect as the result of a chronic process of relatively long duration and having its starting point before the onset of pregnancy. Thus, theoretically, it should be easy to differentiate between the acute toxemia and the chronic nephritis by the fundus picture alone; but, practically, I do not believe one can do this in the majority of the cases for the following reason: If the preexisting chronic nephritis was not severe enough to cause vascular changes, as is often the case, the sudden flaring up of the nephritis caused by the extra burden of pregnancy will show more the acute toxic type of fundus picture, and the chronic vascular changes will not be found. In the rare cases in which the vascular changes are found, however, by the fundus picture alone one can make a definite diagnosis of chronic nephritis and, according to Greenwood,[8] the probable length of life of the patient will not exceed two or three years. At the risk of repetition, it should be remembered that if retinitis is present there is a four to one chance that the patient has nephritis, according to Schiötz' statistics.

CONCLUSION

It seems that the routine examination of the fundi is of distinct value to the obstetrician. It has been asserted that, if properly handled, cases of toxemia would not be allowed to progress to the point at which

fundus changes appeared, and fundus changes are, without doubt, found only in the severer cases. At the Boston Lying-in Hospital, most of the extensive changes I found were in very sick patients, more or less dumped on the hospital at the last moment, and who, if they had been in the clinic, would never have been allowed to get into such a condition. However, granting all that, the fundus changes do come on quite early in some cases, give a distinct lead to the etiology, prognosis, etc., and, in some instances in which there is doubt about continuing the pregnancy, may be the determining factor in deciding to terminate it. Furthermore, considered merely in the light of research, it is quite possible that a routine eye examination in large series of carefully grouped and studied cases of toxemia may produce interesting and valuable information.

ABSTRACT OF DISCUSSION

DR. ALLEN GREENWOOD, Boston: While I have always felt that the chronic nephritic type was the most common, and while the author has amply demonstrated this to be true, it is not always possible to distinguish between the two types by the fundus examination, except in well marked cases. Recently, I have likened the fundus changes of the toxemic type to those seen in trench nephritis, in which retinal edema with albuminuric neuroretinitis and many small hemorrhages occur, with rapid disappearance of all these signs on the termination of the pregnancy. In the chronic nephritic type, the fundus may present, and, in addition, marked evidences of vessel disease and more retinal degenerations; and on the termination of the pregnancy, such signs do not disappear. In the toxemic type, the edema of the ocular tissue may result in bilateral separation of the retina, which disappears rapidly after the pregnancy terminates; and subsequent normal pregnancy may occur without ocular disturbances. When albuminuric retinitis occurs in a patient having a pregnancy as an additional burden to an already diseased kidney, the chronic nephritis is so aggravated that subsequent pregnancies are not likely, and the patient later goes through the usual course of those having chronic nephritis and albuminuric neuroretinitis. If all the women showing evidences of a toxemia of pregnancy are examined carefully as to fundus changes, the disproportion in favor of chronic nephritis may be changed the other way. In view of the mortality rate in both types when the condition is allowed to continue until the termination of the pregnancy, and of the very high mortality rate to the embryo and the possibility of serious loss of vision, even when the death of the mother does not occur, it would seem much wiser to terminate the pregnancy when the retinitis is discovered before the eighth month. In those cases in which the fundus and other symptoms indicate the case to be one of the chronic nephritic type, if treatment causes great improvement in the condition, a waiting course might safely be pursued. Cooperation between the obstetrician and the ophthalmologist, such as is at present the custom at many lying-in hospitals, will, in the future, help to clear up many of the problems.

DR. WILLIAM C. POSEY, Philadelphia: In 1908, I read a paper in conjunction with Dr. John Hirst, with the title, "The Importance of an Ocular Examination in Pregnant Women Manifesting Constitutional Signs of Toxemia." This paper had reference particularly to those cases of pregnancy complicated by serious toxemias in which the urine is free from albumin. This happens when the liver, or other organ, apart from the kidney, is unequal to the task put on it by the excessive tissue changes which accompany pregnancy, or when the kidneys, though diseased, have not as yet excreted albumin. This atypical and often obscure form of toxemia manifests itself in early pregnancy by pernicious vomiting; later by persistent headache, failing vision, muscae volitantes, epigastric pain and restlessness. Repeated examinations of the urine for albumin being negative, the obstetrician is thrown off his guard, and regards the symptoms as local and of no particular import until convulsions occur. In these doubtful cases, any corroborative evidence of actual toxemia is of the greatest value. It is in this emergency and under these conditions that an ophthalmoscopic examination is particularly indicated, and it is time that obstetricians should appreciate two facts: first, that changes in the eyegrounds that have been occasioned by renal disease, and are almost certainly diagnostic of renal disease, may precede the presence of albumin in the urine; and, second, that the ophthalmoscope may give evidence of disease, of organs other than the kidneys, which has been excited by the toxemia of pregnancy. In my paper, a case of toxemia occurring during pregnancy was reported, in which the ocular symptoms, which were the only demonstrable signs of the disease, and the general symptoms disappeared promptly after the induction of labor. The urine was free from albumin at all times, and the general symptoms were few; and had the ophthalmoscope not revealed the malignancy of the toxemia, it is probable that the labor would not have been interrupted, and it is not unlikely that the patient would have died of eclampsia. The importance of this subject cannot be overestimated, and it behooves obstetricians and ophthalmologists alike to pay more attention to it.

DR. EDWARD JACKSON, Denver: I want to emphasize the points brought out in the paper and discussion, and the importance of having the pregnant woman under observation and of calling in the ophthalmologist. I think Dr. Greenwood's comparison of the condition found with trench nephritis is appropriate for these acute toxemia cases. In the few cases I have seen, it was evident that although the cases are obscure, there was an ophthalmoscopic change, particularly at the margin of the optic disk, and in the thickening of the retina around it. These changes antedated any decided change in vision. Perhaps there had been faulty or obscured vision, but nothing alarming. In the cases I have encountered, the early recognition of the condition allowed of its removal, so that the threatened danger was eliminated. But even if that were not the case, if something radical were necessary, I believe this retinal change gives the first positive warning. One other point as to the retinal lesions: Both in the nephritic cases and in the cases of acute toxemia, I have met no case in which the indication was at all clear, or strongly suggestive, of the need of terminating the pregnancy (the indications of impaired vision and retinal changes). If this was not done, the child was born living, at term. The termination of pregnancy to meet this indication would cause very few cases of death of the infant that would not have occurred spontaneously, while it gives the mother the greatest safety. I remember particularly the case of a woman, who had been previously pregnant and had a very marked nephritis. The case was very frankly laid before her, and she chose without the slightest hesitation and with a great deal of determination that the pregnancy should go on even if it resulted in her death. She went on nearly to term, but the child died and slightly premature labor resulted. The fact that the case can be controlled generally by medical care, and that it can almost always be terminated without real sacrifice of the life of the child, should be borne in mind, and should be the leading thought in connection with this condition.

DR. ARNOLD KNAPP, New York: It is difficult in these cases always to recognize changes in the blood vessels of the retina. At least, I have that difficulty. I think it is generally due to the slight blurring and haziness of the retina, and the exudates and hemorrhages that are present. I also wonder whether this difficulty may not be due to our present conception of this condition—that it is a lesion of the artery. The small arteries of the retina are principally affected; namely, the vessels that run at right angles to the course of the vessels that we usually recognize in the superficial layer of the retina.

DR. ROBERT CARTWRIGHT CHENEY, Boston: Obstetricians are coming more and more to realize the importance of the eye findings. Not long ago, an obstetrician said to me, "If all these cases of toxemia were managed properly, they would not lead to retinitis." I think what he meant was that if they were properly handled they would not be allowed to become sufficiently advanced for the patients to have retinitis. I think he was wrong about that, as was brought out in the discussion. He was about the only man of a number I talked to who did not feel that the eye symptoms in early cases would often be of great value.

POSSIBLE CAUSES OF RENAL BLEEDING WHICH CANNOT BE ACCURATELY DIAGNOSED *

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The aids for making a correct diagnosis available to the present day urologist have practically eliminated undiagnosable cases. Despite these aids, however, we occasionally encounter cases of unexplained hematuria that baffle our every effort to determine their etiology. These naturally classify themselves under the caption of essential, or idiopathic, hematurias.

I have always doubted the existence of hematuria without a definite cause, and have felt that the use of such terms was simply a cloak of unscientific verbiage behind which we hid our ignorance. That bleeding from the kidney does not occur without a positive etiologic factor is my contention, and I am borne out by a review of the literature, in which I have found a preponderance of evidence to prove that when such kidneys have been removed and carefully studied, some pathologic condition has been found.

Israel,[1] in 1901, wrote, "The result of the analysis of my fourteen cases of so-called nephralgie hématurique, essential or angioneurotic kidney bleeding, is that there can be shown in most of them organic changes in the kidney or its capsule, or an abnormal mobility." In 1907, Kretschmer [2] verified Israel's views by a study of necropsy or operative specimens, finding positive nephritic or nephritic-like changes in fifty-two out of sixty-one cases; again, in 1914, he [3] wrote that in twenty-seven cases in which histologic examinations were made in twenty-two changes of a nephritic nature were found. In a case of his own, the patient had no clinical symptoms of nephritis, no albumin, no casts, no edemas, no high blood pressure, no retinal changes, yet the pathologic report showed nephritic changes in the kidneys. In Shuebach's case,[4] there was hematuria for three weeks and no other symptoms. The blood was seen coming from the left ureter. Nephrotomy and excision of two small sections of kidney tissue were performed, a secondary hemorrhage necessitating nephrectomy. The pathologic report on excised sections and on the kidney were negative; hence, it was thought to be a case of essential hematuria, but careful serial sections of the kidney made later showed tuberculosis in such a small area that it had been previously overlooked.

Corbus [5] says, "While a great deal of speculation has been brought forward in regard to the etiologic factors in essential hematuria, few have considered the possibility of secondary ulcers or gummatous formations, and it might be well in this class of cases to thoroughly eliminate this form of infection, before ascribing some doubtful etiology."

Elliot,[6] White,[7] Gaudiani,[8] Billings [9] and many others favor bacterial invasion as a cause for hematuria. Pelvic changes associated with hematuria have been described by McGowan and Peterkin,[10] Pilcher,[11] Zimmer,[12] Guibe,[13] von Frisch [14] and Quinby.[15]

Walker [16] says, "Kidneys in most of these cases show a partial chronic nephritis, and in a few there is a varicose condition of one or more of the renal papillae." He cites Newman's case of severe renal hematuria, which preceded other symptoms of tuberculous disease by two years.

Payne [17] cites a case in which the papillae showed an overgrowth of connective tissue, with highly dilated capillaries, and microscopic calculi lying in close apposition to the dilated capillaries.

Young [18] says: "It is reasonable to believe that, in a majority of these cases, there is an early unrecognized nephritis or a prenephritic condition which can be and so often is the cause of hematuria, and that this condition may or may not go on to a progressive damage of the kidney, depending on conditions we, as yet, do not understand. In certain of these cases the primary focus of damage can be recognized and, when eliminated, will prevent the later development of the disease."

Randall [19] and Spitzer [20] state that chronic passive congestion is an important factor in obscure renal hemorrhage.

Fowler and Waterman [21] report a case in which nephrectomy was done, and the pathologic diagnosis was submucosal hemorrhage, varix of the renal venules, focal infective nephritis and early arteriosclerosis.

Hunner [22] has demonstrated stricture of the ureter in eighteen of his cases of so-called essential hematuria. He says that ureteral stricture is usually caused by an inflammation secondary to some distant focus of infection, and it is a well recognized fact that nephritic inflammations, some of them accompanied by hematuria, are caused by focal infections. He concludes, "Our cases are too few in number to warrant dogmatic conclusions, but the results suggest that ureteral dilation and care of focal infections will be the future treatment of the so-called essential hematuria."

Eisendrath and Wright [23] report a case of symptomless hematuria for five months, then an attack of left renal colic with anuria for twenty-four hours. This was a case of congenital single kidney, and, at cystoscopy and catheterization, a stricture was found in the pelvic portion of the left ureter. After passing the stricture, first blood, then clear urine escaped as if under tension. The condition recurred on removal of the catheter on the fourth day, so the ureter was opened in the iliac portion. The patient made an uneventful recovery, and treatment for the relief of the ureteral stricture was instituted.

Chute [24] says, "Bleeding in renal tuberculosis usually is not severe," but reports two of his own cases in which it was so severe that suprapubic cystotomy was done, as he thought so severe a hemorrhage could come only from the bladder.

* Read before the Section on Urology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Israel: Concerning Renal Hematurias, Nephrolagies and Colics, in Apparently Unaltered Kidneys, 1901.
2. Kretschmer, H. L.: Ztschr. f. Urol. **1**: 490, 1907.
3. Kretschmer, H. L., and Potter, H. E.: Interstate M. J. **21**: 154, 1914.
4. Shuebach: Cited by Kretschmer (Footnote 3).
5. Corbus, B. C.: Modern Urology, 1923.
6. Elliot: Internat. Clin., Series 6, **2**: 122.
7. White, W. H.: Quart. J. Med. **4**: 509, 1910-1911.
8. Gaudiani: Folia Urol. **3**: 570.
9. Billings: Am. J. M. Sc., 1910, p. 625.
10. McGowan and Peterkin: Tr. Am. Urol. A., 1909.
11. Pilcher: Ann. Surg., 1909, p. 652.
12. Zimmer: Wien. med. Wchnschr., 1911, p. 2358.
13. Guibe: Presse méd., 1909, p. 73.
14. Von Frisch: Ztschr. f. Urol., 1909, p. 573.
15. Quinby, W. C.: J. Urology **4**: 209 (June) 1920.
16. Walker, Thompson: Genito-Urinary Surgery, New York, Funk & Wagnalls Company, 1914.
17. Payne, R. L., Jr.: Surg., Gynec. & Obst. **23**: 76 (July) 1916.
18. Young, E. L., Jr.: Surg., Gynec. & Obst. **31**: 478 (Nov.) 1920.
19. Randall, Alexander: The Etiology of Unilateral Renal Hematuria, J. A. M. A. **60**: 10 (Jan. 4) 1913.
20. Spitzer, W. M.: Continuous Painless Renal Hemorrhage and Its Treatment, J. A. M. A. **63**: 2110 (Dec. 12) 1914.
21. Fowler and Waterman: Internat. Abst. Surg., June, 1922, 441.
22. Hunner, G. L.: Ureteral Stricture: An Important Etiologic Factor in So-Called Essential Hematurias, J. A. M. A. **79**: 1731 (Nov. 18) 1922.
23. Eisendrath, D. N., and Wright, Frank: Anuria in Congenital Single Kidney Relieved by Ureteral Catheterization, J. A. M. A. **82**: 717 (March 1) 1924.
24. Chute, A. L.: Boston M. & S. J. **182**: 623 (June 17) 1920.

Pizzetti [25] cites Taddei's recent experience with six cases of supposed essential hematuria in which not only the kidney but also the pelvis and ureter showed patches of chronic inflammation.

Fortified by such an array of expert opinion and case reports, I feel fully justified in reiterating my contention that hemorrhage from the kidney occurs only in the presence of some renal pathologic changes.

In those cases in which no cause was found for the hemorrhage at necropsy or from operative specimens, a more careful and thorough sectioning of the kidney would have revealed it (e. f. Shuebach's case) as has been quoted above.

Hematuria may be due to stone, tumor, tuberculosis, nephritis, movable kidney, stricture of the ureter, papillitis, and, I would add (with Randall and Spitzer), any condition causing congestion of the kidney.

Little did I realize the frequency and importance of ureteral stricture in the production of hematuria and other renal pathologic changes, until Hunner continued to hurl his array of facts at us. I feel that Hunner has merited the everlasting gratitude of sufferers from ureteral stricture and has proved himself a benefactor to all urologists as well as their patients, in having done such monumental work and, more difficult still, in having at last made an impress on so many "doubting Thomases."

An article by Rathbun [26] shows that he has seen the light, and I here take this opportunity publicly to express my thanks and appreciation to Dr. Hunner and to tell him that I, too, have seen the light and by it have been able to find stricture of the ureter in cases in which I had previously overlooked it and in cases in which other urologists (whose diagnostic ability is of the highest) had done the same thing.

That stricture of the ureter is a frequent cause of so-called essential hematuria, the following two cases will demonstrate.

CASE 1.—Mrs. S., aged 34, when six months pregnant had an attack of dull heavy pain in the right loin, followed by the passage of bloody urine. The condition not responding to internal medication after ten days, she was referred to me. On cystoscopy, both ureter openings were normal; bloody urine was seen coming from the right ureter, and clear urine from the left; No. 5 roentgen-ray catheters passed easily to each pelvis. A roentgenogram was negative for stone, and the size and position of both kidneys were normal. Five c.c. of 1 per cent. silver nitrate solution was injected into each pelvis. Following this, the patient had some slight bleeding for twenty-four hours. The dull pain in the loin persisted with more or less regularity; three months after the birth of the baby, the patient again applied for relief of the pain in the side, having had no further bleeding since I had done cystoscopy, six months before. On cystoscopy, the ureter openings were normal; there was clear urine from each; No. 5 roentgen-ray catheters passed without obstruction to each pelvis. Urine from the right kidney showed a few blood and pus cells, colon bacilli and staphylococci; urine from the left kidney was negative. A right pyelo-ureterogram showed a stricture of the ureter in the pelvic portion and a dilatation the size of a lead pencil above it. This patient has had no further bleeding and has been relieved of the pain by dilations at intervals since.

CASE 2.—J. J., a man, aged 52, seen March 10, 1924, had a symptomless hematuria which began three days before. About nine months before, he had had several attacks of left renal colic at intervals for ten days. At this time the patient passed no blood, and had no pain or other symptoms till the hematuria began three days before I saw him. On cystoscopy, the right ureter opening was normal, with a clear flow from it, and the left was puffed, with a bloody efflux coming from it. A No. 5 roentgen-ray catheter passed easily to the right pelvis, but a similar catheter could not be passed through the left ureteral orifice. I removed the No. 5 catheter and inserted a No. 5 roentgen-ray bougie, and was able to pass it with some difficulty into the left orifice and thence to the pelvis. I removed the bougie, but could not pass a No. 5 or No. 4 catheter into the left orifice. I replaced the No. 5 bougie and left it in situ for fifteen minutes. After this treatment, the patient passed bloody urine for twenty-four hours. Three days later I performed cystoscopy again, and clear urine was seen coming from both ureter openings. A No. 5 roentgen-ray catheter passed easily to each pelvis. A left pyelo-ureterogram showed stricture of the ureter at the bladder and some dilatation of the ureter above. Further dilations of the ureter have entirely relieved him.

CASE 3.—*Hematuria caused by movable kidneys.* M. R., a woman, aged 37, seen in May, 1922, had a symptomless hematuria for the past three months. Ten years before, she had had an attack of renal colic (left), and later passed two or three small calculi. There had been no symptoms since, till three months before, when the patient began passing bloody urine. The kidneys were not palpable, but there was some tenderness over the right kidney region on first percussion. On cystoscopy, the bladder and both ureteral orifices were normal; there was clear urine coming from the left, and a bloody efflux from the right. Roentgen-ray examination showed movable kidneys, the right falling more than 3 inches, the left more than 2 inches. A double nephropexy was done. The patient has been entirely well and free from hematuria for two years.

CASE 4.—*Infection and cystic degeneration of the kidney responsible for profuse hematuria.* G. M., a man, aged 43, seen in June, 1922, four weeks before had had severe right renal colic, followed by the passage of bloody urine. The urine was bloody for several days, and then became clear. The patient had another attack ten days later, and again the blood disappeared in a few days. He began passing bloody urine again two days before examination, and the bleeding had been severe ever since. The kidneys were not palpable or tender. On cystoscopy, the bladder and ureter openings were normal; there was clear urine from the left, very bloody from the right. A roentgenogram showed marked enlargement of both kidneys, and a right pyelogram showed a marked filling defect and dilated calices. Urine from the left kidney contained a few pus cells; from the right, a great many pus cells, colon bailli and staphylococci. A phenolsulphonephthalein test resulted in the return from the left kidney of 10 per cent. in the first fifteen minutes and 15 per cent. in the second fifteen minutes; color appeared in four minutes. Blood examination revealed: hemoglobin, 76 per cent.; leukocytes, 5,800; polymorphonuclears, 70 per cent. On account of the size of the kidneys, the filling defect and the hemorrhage, a diagnosis of tumor of the right kidney, with secondary infection and compensatory enlargement of the left was made. The patient had lost so much blood and was so weakened that a blood transfusion by the citrate method was done, not only to restore him but also in the hope of controlling the hemorrhage. The bleeding continued, however, so the operation was done at once. When the kidney was delivered, it was found to have undergone cystic degeneration, with hemorrhage into the pelvis, and, as the function in the other was deemed sufficient to maintain life, I did a nephrectomy. The patient made a rather stormy recovery, having hiccups at intervals for ten days. Six days after operation, chemical examination of the blood revealed: creatinin, 2.94 mg., and urea nitrogen, 48 mg., but now, two years after operation, the patient is entirely well, and the remaining kidney has a functional output of 40 per cent., the first hour and 15 per cent. the second hour.

CASE 5.—*Tuberculosis of the kidney responsible for hematuria, which cleared up for fourteen months following pelvic lavage.* D. P., a woman, aged 24, seen in April, 1922, had hematuria with frequency and dysuria eighteen months before. After pelvic lavage, hemorrhage and the bladder symptoms subsided.

25. Pizzetti, D.: Unilateral Hematuria, Policlinico **28**: 347 (April 29) 1921; abstr. J. A. M. A. **77**: 1138 (Oct. 1) 1921.
26. Rathbun, N. P.: Stricture of the Ureter, M. J. & Rec. **119**: 43 (March 5) 1924.

The patient had no further symptoms till four months before examination, when dysuria recurred and was accompanied by dull, heavy aching in the right loin, rigors, fever and sweats. She had lost about 30 pounds (13.6 kg.) in the past four months. On cystoscopy, the bladder showed chronic cystitis and the right ureter opening could not be located, even after the injection of indigocarmin. The left ureteral orifice was easily found, and clear urine was seen coming from it. A No. 5 roentgen-ray catheter passed easily to the left pelvis, and the urine obtained through it was normal except for an occasional leukocyte. The bladder and the left kidney urine were negative for tuberculosis, and guinea-pig inoculations gave the same result. The roentgen-ray examination was negative except that the right kidney was much larger than the left. A diagnosis of infected tuberculosis of the right kidney was made and confirmed at operation, when nephrectomy was done. The patient made an uneventful recovery and, at this time, more than two years since the operation, has gained more than 30 pounds (13.6 kg.) and is perfectly well.

CONCLUSION

These cases of my own, in addition to those already mentioned, rather forcibly emphasize the fallacy of temporizing in cases of renal hematuria. I therefore wish to go on record as condemning the practice of treating kidney hemorrhage by pelvic lavage with silver nitrate, epinephrin, etc., as advocated by Rytina,[27] Barker,[28] and others, for, in this manner, cases of tuberculosis, carcinoma, etc., may be cleared up temporarily, thus postponing a correct diagnosis till perhaps it may be made too late.

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HEMATURIA OF BLADDER ORIGIN *

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Is it not remarkable and likewise an indictment of our profession that hematuria—the sign of grave disorder from time immemorial—in spite of the advent of cystoscopy, ureteral catheterization and the other refinements of urologic diagnosis, continues to be regarded too lightly by practitioners in general and, therefore, by their trusting, hopeful, faithful and easily beguiled patients? By what pretext of intelligence, medical education or common sense can any physician, presumably knowing the fundamentals of disease and pathology, conscientiously prescribe some urinary antiseptic and then calmly await the *vis medicatrix naturae* to stop the hemorrhage? General practitioners of medicine are largely to blame for the unfortunate, inoperable and incurable state presented by many patients by the time they consult the urologist. Too often, natural processes result in the temporary cessation of hematuria. The physician allows the patient to pat him on the back, and records the case as one of "essential hematuria"—a most deplorable diagnosis and, as Kretschmer states, one that "has sealed the fate of many victims."

Assuredly, the physician does not exist who is ignorant of the fact that hematuria may mean malignant disease of the bladder or kidney. Why, therefore, does he stoop so often to treat such patients without subjecting them to a proper urologic study to ascertain, if possible, the source and cause of bleeding? I believe the answer lies in a lack of appreciation of the urgency of early determination of the cause, and, therefore, the necessity of prompt surgical intervention. He procrastinates, giving ear to the importunities of a surgically reluctant patient, believing that even though the blood may betoken a serious condition it will still be time to resort to surgical aid if it proves to be continuous or recurs. This is the fatal error of the easy-going family physician and the death knell of hundreds of trusting patients. The solution of the problem would seem to be the transference of such symposiums as this to the Section on Practice of Medicine and the Section on Diseases of Children at our annual sessions, to our county medical societies and to mediums for the education of the public. The doctrine must be propounded that to treat expectantly or palliatively any case of hematuria, known not to be of urethral origin, prior to a competent and complete urologic examination, is most reprehensible and sufficient cause for suit for malpractice.

Unfortunately, hematuria, too often, is painless and unaccompanied by any other symptoms. The determination of its cause, of whatever origin, may tax the skill and ingenuity of the most expert urologist, necessitating resort to each and all of the various diagnostic procedures, especially during the attack of bleeding; and, moreover, the examination may require repetition one or more times over an extended period, and even then, in a few cases, the chagrin of failure will be the urologist's only reward. The fallibility, occasionally, of the cystoscope, the roentgen ray, etc., must be granted, although failure of determination of the cause of vesical hematuria is very infrequent as compared with that of renal origin. In 238 cases of microscopic hematuria, Kretschmer [1] had twenty-five in which the source was not found, and fourteen in which the source but not the cause was discovered. MacKenzie [2] found 821 cases of hematuria in 3,800 urologic admissions. Chute,[3] in 100 cases, found sixty-four due to new growths, of which 50 per cent. occurred in the bladder. Lower,[4] in a study of 2,922 patients with urogenital disease, discovered hematuria in 798, or 26 per cent. He demonstrated conclusively that the true significance of hematuria as a diagnostic indication lies, not in the relationship of the primary cause to the total incidence of hematuria, but in the relationship of the occurrence of hematuria to the primary cause. Although I believe that a statistical study of the incidence of hematuria, so far as the organ involved or the primary cause is concerned, has little practical value, nevertheless, I shall present a series of cases of hematuria with an analysis of the causes. The analysis is confined entirely to private patients, whose office histories and records are doubtless more accurate and reliable than the average hospital case; the term hematuria includes microscopic as well as macroscopic, but does not include bleeding due to gonorrhea or surgical trauma (sounds, urethroscopes, cystoscopes, etc.).

In 6,320 patients presenting genito-urinary lesions, 430, or 6.8 per cent., had hematuria. In 216, or 50.2 per cent., the bleeding was of bladder origin, distributed

27. Rytina, A. G.: Treatment of Essential Renal Hematuria by Intrapelvic Injections of Silver Nitrate, J. Urol. **4**: 317 (June) 1920.
28. Barker, O. D.: W. Virginia M. J. **15**: 174 (Nov.) 1920.

* Read before the Section on Urology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Kretschmer, H. L.: Leukoplakia of the Bladder and Ureter, Surg., Gynec. & Obst. **31**: 325-339 (Oct.) 1920; The Surgical Treatment of So-Called Elusive Ulcer of the Bladder, J. A. M. A. **76**: 990-995 (April 9) 1921; Elusive Ulcer of the Bladder: A Further Report, Surg., Gynec. & Obst. **35**: 759 (Dec.) 1922; Hematuria: A Clinical Study, J. A. M. A. **68**: 598 (Feb.) 1917.
2. MacKenzie, D. W.: Hematuria: Its Significance, Canadian M. A. J. **14**: 41 (Jan.) 1924.
3. Chute, A. L., and Crosbie, A. H.: Mucous Cancer of the Bladder, Boston M. & S. J. **167**: 583-585 (Oct. 24) 1912. Chute, A. L.: Significance of Hematuria, ibid. **182**: 623 (June 17) 1920; Some Instances of Diverticulitis of the Sigmoid Opening into the Bladder, ibid. **184**: 118-121 (Feb. 3) 1921; Am. A. Gen.-Urin. Surgeons **6**: 86, 1911.
4. Lower, W. E.: Hemorrhage in the Genito-Urinary Tract, Surg., Gynec. & Obst. **38**: 360-362 (March) 1924.

among a multiplicity of causes outlined in the accompanying tabulation. In 33.7 per cent., the hematuria was of renal or ureteral origin, and, in 4.2 per cent., it was impossible to distinguish between bladder or renal source; in the majority it was probably both. In 18.3 per cent. the blood was of prostatic, spermatocystic or urethral origin. In only 2.5 per cent. was the source of the hematuria indeterminable.

Just as in the kidney, so also in the bladder, the commonest causes of hematuria are tumor, inflammation and calculus, but, in reviewing my own cases and the literature on vesical hemorrhage, I have been somewhat astonished at the multiplicity of causes. They number no fewer than sixty-six, as may be seen by reference to the accompanying table. In general, the causes of bladder hematuria may be grouped under (1) blood dyscrasias; (2) trauma; (3) congestion; (4) malformations; (5) calculi; (6) foreign bodies; (7) inflammation; (8) tuberculosis; (9) syphilis, and (10) tumors.

It is true that in certain of the blood diseases, such as hemophilia, purpura, pernicious anemia and paroxysmal hemoglobinuria, the origin of hematuria is both renal and vesical. In this connection, it is of interest to note that Cooke [5] considers "syphilis the most important, possibly the only, cause of paroxysmal hemoglobinuria."

In this analysis, catheterizations, sounds and intravesical instrumentation are excluded from the traumatic causes of hemorrhage. Of the three commonly recognized types of trauma, contusion, rupture and wounds, it should be remembered that cystoscopy, in defining the exact location of the injury, is frequently of more practical value than the time-honored method of injection and recovery of a known quantity of sterile fluid.

Congestion as a factor in vesical hematuria has many diverse contributory causes, such as drugs, varicose veins, urinary retention due to neurologic or obstructive conditions in the urethra or at the vesical orifice, pressure from extravesical tumors, abnormalities of the female and male internal genitalia, and vasomotor disturbances. Practically all the remaining groups of causes of bladder hematuria can be demonstrated before the supervention of a true cystitis.

The malformations—diverticulum, insufficiency of the ureteral orifice, ureterocele and extrophy—sooner or later result in congestion, cystitis and hematuria.

Calculi may be either primary or secondary in the bladder. The latter consist in the early stages usually of uric acid, urate or calcium oxalate but later may embody every known composition of urinary calculi, and the attendant bleeding may have for its source the bladder, ureter or kidney; the former are commonly of calcium phosphate constitution, but may represent at times any or all of the calcareous constituents, and the hematuria, in the absence of complications, is exclusively of bladder origin. The cystoscope has rendered the stone searcher obsolete in the diagnosis of this affection. Small calculi may be removed cystoscopically, but, for the vast majority, cystotomy vies with litholapaxy in treatment, with the argument in favor of the former, especially if the calculi are large, hard and associated with much cystitis. Calculi complicating glandular or bar obstruction at the neck of the bladder, especially if complicated by marked cystitis, indicate primary cystolithotomy.

5. Cooke: Paroxysmal Hemoglobinuria, Am. J. M. Sc., August, 1912, p. 203.

Causes of Hematuria of Bladder Origin

- **Blood Dyscrasias**
  - Hemophilia
  - Scurvy
  - Purpura
  - Leukemia
  - Pernicious anemia
  - Paroxysmal hemoglobinuria
- **Trauma**
  - Contusion
  - Rupture
    - Intraperitoneal
    - Extraperitoneal
  - Wounds
    - Incised
    - Punctured
    - Lacerated
    - Gunshot
- **Congestion**
  - Drugs
  - Varicose veins
  - Retention of urine
    - Neurologic
      - Reflex
      - Spinal cord lesions
    - Urethral obstruction
      - Stricture
      - Prostatic hypertrophy
      - Median bar
      - Glandular enlargement
  - Pressure from extravesical tumors
  - Abnormalities of female and male internal genitalia
  - Vasomotor disturbances
- **Malformations**
  - Diverticulum
  - Regurgitant ureter
  - Prolapse of ureter (ureterocele)
  - Extrophy
- **Calculi**
  - Primary
  - Secondary
- **Foreign Bodies**
  - Catheters
  - Hairpins
  - Pencils
  - Hatpins
  - Wax tapers
  - Shoe strings
  - Tallow
  - Sutures
- **Inflammation**
  - Infectious fevers
    - Variola
    - Scarlatina
    - Typhoid
    - Pneumonia, etc.
  - Parasites
    - Plasmodium malariae
    - Filaria sanguinis-hominis
    - Schistosoma hematobium
  - Alkalinuria
  - Cunnilingus
  - Cystitis cystica
  - Encrusted cystitis
  - Fistulas
    - Rectal
    - Vaginal
    - Diverticulitis of sigmoid
    - Pelvic abscesses
      - Genital
      - Osteomyelitis (tuberculous)
  - Ulcers
    - Acute (common bacteria)
    - Chronic
      - Solitary (colon)
      - Interstitial ulcerative cystitis (Hunner's submucous)
      - Callous
      - Actinomycosis
- **Tuberculosis**
- **Syphilis**
  - Perivascular infiltrations
    - Macules
    - Papules
  - Ulcerations
  - Granulomatous cystitis
  - Gummas
  - Tabetic trabeculations
- **Tumors**
  - Benign
    - Papilloma
    - Polypi
    - Hemangioma
    - Adenoma
    - Myxoma
    - Myoma
      - Leio
      - Rhabdo
    - Fibroma
    - Leukoplakia
    - Cysts
      - Small retention
      - Large
        - Pedunculated
        - Sessile
      - Dermoid
  - Malignant
    - Carcinoma
      - Papillary
      - Squamous
      - Adeno
      - Mucus
      - Melano (secondary)
    - Sarcoma
      - Round cell
        - Large
        - Small
      - Spindle cell
      - Fibro
      - Myxo
      - Lympho

Foreign bodies cause hemorrhage either by primary traumatism or by secondary cystitis. My personal experience comprises eight different articles—catheters, hair and hat pins, pencils, wax tapers, shoe strings,

tallow and sutures—removed cystoscopically or surgically from bladders. Sexual perversion does not always furnish the motive; witness, catheters and sutures.

Inflammation, even excluding tuberculosis and syphilis, which because of their importance are given special rating, furnishes the most extensive and diverse etiology of the manifold causes of hematuria. In this group are included the infectious fevers—variola, scarlatina, typhoid, influenza, pneumonia, etc., producing vesical as well as renal bleeding; the parasites *Plasmodium malariae, Filaria sanguinis-hominis* and *Schistosoma hematobium;* alkalinuria; cunnilingus; cystitis cystica; encrusted cystitis; fistulas of the rectum and vagina; sigmoid and pelvic abscesses, and the various acute and chronic ulcers of the bladder. Most notable in this last group is the so-called "Hunner's ulcer," otherwise known as "simple," chronic perforating, submucous, elusive, circumscribed panmural ulcerative cystitis, paracystitis, irritable bladder and cystitis parenchymatosa originally described by Nitze. At the risk of multiplying synonyms, I venture to propose a new name—chronic interstitial ulcerative cystitis—for this troublesome and little understood disease. White and Martin [6] described this disease and illustrated it by two anatomic drawings, showing the late pathology of the rare type of bladder ulcer described and popularized by Hunner [7] in 1914. We believe that this is a blood-borne infection which is in line with the researches of Bumpus [8] and Bumpus and Meisser [9] causing an extensive chronic inflammation of all the coats of the bladder, which may or may not ulcerate through the mucosa, but may give rise to an intramural abscess and great infiltration of the entire bladder walls, with marked decrease in the capacity of the viscus. The ulcer is the least important of the pathologic changes. This is evidenced by the frequent absence of red blood cells in the urine, the obstinacy of the condition to treatment, and the high incidence of recurrence within a year or two, even after excision *en bloc.* Nothing short of resection of the bladder should be considered from the standpoint of treatment. Blood, even in the centrifugated urine, is demonstrable in not more than 50 per cent. of cases. The callous ulcer of the bladder, described by Buerger,[10] is an entirely different pathologic entity.

Tuberculosis, theoretically, may be primary in the bladder, but, practically, is always secondary, and, if genital involvement can be excluded, means tuberculosis of the kidney. Cystoscopy, with or without examination of the urine for tubercle bacilli, will invariably suffice to make the diagnosis. Hematuria at one time or another in the course of the disease is always present, but, at the time the patient presents himself, may not be demonstrable; it is frequently both vesical and renal in origin.

Syphilis of the bladder may exhibit itself as a secondary, tertiary or tabetic manifestation, in characteristic parivascular infiltrations, ulcerations, granulomatous cystitis, gummas or periureteral trabeculations. Tumors, the most common and prolific cause of bladder hemorrhage, are benign or malignant, and are multiple in 25 per cent. Of the vesical neoplasms, papilloma is the most frequent benign growth. Other benign tumors rarely encountered are hemangioma, polypi, adenoma, myxoma, fibroma, leukoplakia and cysts, the last consisting of small retention cysts, large, pedunculated cysts, and sessile and dermoid types. The commonest malignant tumor is carcinoma. I have seen it in four rôles, papillary, squamous, adeno and mucus. Richards has described a secondary melano-epithelioma of the bladder. Sarcoma, of whatever histologic conformation, is an extremely rare vesical neoplasm. The diagnosis between a benign and a malignant growth is, as a rule, not a difficult matter by expert cystoscopy. Resort to biopsy should be necessary very rarely. In this connection, I must emphasize again my objection to the deplorable term "malignant papilloma." There is no such thing histopathologically, and the sooner we exclude it from our nomenclature, the better shall we understand each other in scientific discussion. So soon as a papilloma becomes malignant, it is a papillary carcinoma. The treatments of the various types of bladder tumor, I have detailed elsewhere, and shall not repeat at this time.

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CONCLUSIONS

1. Cathelin's table, stressing the color of the blood, the presence and character of clots, the time, amount, painful or painless character of hemorrhages, the age of the patient, the significance of initial or terminal bleeding, etc., may be of questionable value in the hematuric syndrome, but it should receive no serious consideration in modern urology.

2. The red blood cell has no place in normal urine. Hematuria is always an indication of some pathologic process of the urologic tract, and may, irrespective of its amount, betoken a grave or incurable disease.

3. The advent of the cystoscope and ureteral catheter made possible the localization of the origin, if not the cause, of most cases of hematuria. If to these are added the other refinements of modern urologic diagnosis, there will be very few cases in which the cause as well as the source of hemorrhage is not determinable.

4. The indictment for procrastination by the general practitioner in treating these cases expectantly for months and years until, frequently, they pass beyond the realm of surgical redemption, rests largely with ourselves for failure to educate, effectively, the family physicion and the public.

5. Hematuria of bladder origin presents a more diverse etiology than that from any other organ of the urologic tract.

6. It is of little moment whether 6 or 99 per cent. of genito-urinary patients exhibit hematuria, or that 90 or 100 per cent. of patients with vesical papilloma or carcinoma have hemorrhage. The important point that we must drive home in the mind, conscience and practice of the family physician, if he wishes to save the lives of many of his trusting patients, is that it is a misdemeanor to treat expectantly any case of hematuria and not to take immediate steps to ascertain the cause.

7. The prognosis in all cases of hematuria is directly proportional to the earliness of the discovery of the cause and the promptness of effective treatment.

116 South Nineteenth Street.

Chickenpox Incidence in 1923.—The case rate for chickenpox was 2.02 per thousand population in seventy-seven cities in 1923. In 1922 it was 1.69 in sixty-eight of these cities.—*Pub. Health Rep.* **39**:1667 (July 11) 1924.

HEMATURIA OF PROSTATIC AND URETHRAL ORIGIN *

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In this paper I will present the subject of hematuria originating from conditions in the urethra, prostate and seminal vesicles.

Anatomically, we may consider hematuria arising from this portion of the genito-urinary tract as of intra-urethral and para-urethral origin. Its etiologic factors may be thus discussed in their order of importance and frequency:

First, are the infections of the urethra, prostate and seminal vesicles. These infections may be specific or nonspecific, gonococcal infection, however, being by far the most frequent.

Trauma plays an important part as an etiologic factor of hematuria, as do accidental or wilful local injections into the urethra of such chemicals as formaldehyd strong silver nitrate, and the like.

Hematuria has been caused by tuberculosis, syphilis, prostatitis, prostatic abscess and gout.

Violent massage of the prostate has often brought on hematuria from the prostate and posterior urethra. Some cases of varicosities in the posterior urethra have been noted. Hyman recently found in a man, aged 42, an angioma the size of a 10 cent piece about 2 inches from the meatus, covering the roof and lateral walls. Profuse bleeding was controlled only with epinephrin.

Stricture has been given by many authorities as one of the chief causes of hematuria in the urethra. Keyes [1] reports twelve stricture cases with hematuria. Fullerton [2] reported in 1908 a case of a very severe hematuria in which the man lost several quarts of blood. This was due to a stricture and a complicating papilloma of the urethra. McGowan [3] reports a case of hematuria in a man, aged 66, having two strictures of the urethra, one at the meatus admitting an 18 French, and the second stricture about 12 cm. back in the urethra, admitting a 14 French, sound. E. L. Young [4] reports, in his series of 117 cases of stricture, that hematuria was present in forty-one cases, but none of these presented themselves with hematuria as a specific symptom. In our series of 216 cases at Bellevue Hospital, only eleven patients complained of hematuria; three cases were continuous, one terminal, and seven intermittent in type.

Malignant tumors are very rare in the urethra, but several cases of benign tumors have been reported as causing hematuria. In Walther's [5] seventy-eight cases, he found three cases of benign papilloma and two cases of ulcer. MacGowan [3] also reports a case of papilloma anterior to the triangular ligament. Hyman recently had two cases of papilloma, one the size of a cherry behind the verumontanum in a man, aged 42, and in the other, six small papillomatous excrescences were found on the floor of the anterior urethra in a man, aged 28. Numerous other cases have been reported of granuloma or papillomas on the verumontanum which cause bleeding.

Excessive coitus causing nocturnal emissions, premature ejaculation, frequency and tenesmus with hematuria has been reported by Rosen.[6]

Adenoma and carcinoma of the prostate frequently cause hematuria. Rosen [6] reports 100 cases of pathologic conditions of the prostate, only 14 per cent. of which gave hematuria as a symptom; 6 per cent. of these were malignant and the rest benign. Young [4] reports that in his series of 181 cases of benign prostatism, eighty-eight patients had hematuria, and only four of these presented themselves complaining of bleeding as the chief symptom. Thirty-three of these cases were of a malignant prostatism; seventeen patients complained of hematuria, but only two of them presented themselves with hematuria as a chief symptom. Kretschmer,[7] in his series of 238 cases, reported twenty-five patients complaining of hematuria, twelve of whom had carcinoma and thirteen pathologic changes of the adenomatous type. In Walther's [5] series, seven of the patients with carcinoma of the prostate had hematuria. In Chute's [8] 100 cases of hematuria, 14 per cent. were of prostatic or urethral origin exclusive of gonorrhea. He also reports an unusual case of hematuria complicating a hypertrophy of the prostate in which a small papilloma was also found. Kanavel [9] found a patient with hematuria due to hypertrophy of the prostate with a complicating malignant bleeding tumor extending into the bladder. Block [10] reports twenty-five cases of hematuria among 238 prostatic cases. Hirsch [11] reports a case of severe hemorrhage from the prostate with a congenital tuberculosis as one of the complicating factors. MacKenzie [12] of the Royal Victoria Hospital notes that, in 3,800 admissions, 821 cases being in the urologic department, 213 of the patients complained of hematuria which was due to either prostatic or urethral conditions. Dorsey [13] reports an unusual case of hematuria, which was due to a small piece of tissue being left after a prostatectomy, causing a nucleus around which salts were deposited, and a stone formed. In our series of 172 prostatic cases at Bellevue Hospital, 161 were adenomatous in type. Of these patients, twenty came to the hospital complaining of hematuria, three of the continuous type, seven only after catheterization, and six of the intermittent type; only four of these came to us with bleeding as a primary symptom. Of the eleven patients with carcinoma of the prostate, not one complained of hematuria.

Numerous cases of calculi in the urethra and prostate have been reported, but the symptom of hemorrhage has been noted in very few. Hirsch [11] reports a case of impacted stone in the posterior urethra, and Lowsley [14] reports a case of numerous stones in which the symptom of hematuria was present.

In prostatic abscess cases, I have been unable to find any data concerning hematuria. In our series of sixty-two cases, only two patients reported that they had hematuria, and both of these were of the terminal type.

In a careful review of the literature, Barney [15] notes that of forty-two cases due to hemophilia reported, there was hematuria in only seven, and in only one case was the origin in the urethra.

Foreign bodies placed in the urethra, either anterior or posterior, such as nails, pins or glass catheters, have caused hematuria. We had one case at Bellevue Hospital in which a man used a female catheter for mastur-

* Read before the Section on Urology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

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bation purposes, and this produced very severe trauma and hemorrhage.

Ulcers of the infected or syphilitic type are another cause of hematuria.

Hematuria may be of the contiuuous, intermittent or terminal type. In all conditions of the anterior urethra which cause hematuria, such as inflammations due to gonorrhea, and traumatism, stricture, tumors, chemicals, stones, varicosities and the like, the blood is found at the meatus practically at all times. In conditions of the posterior urethra, posterior to the triangular ligament and cutoff muscles, hematuria may be of the continuous or the terminal type.

Hematuria is mostly of the painless type, and is discovered only by accident in a great many cases. In conditions of malignancy, there are generally other symptoms present, such as frequency, urgency and tenesmus with painful hematuria. These vary according to the type of condition and the location of the malignancy. If the malignancy is in the posterior or prostatic regions, it is of a very serious nature and all the foregoing symptoms are present. In cases of seminal vesiculitis, the blood is generally dark, terminal in type and painless, and there may be a hemospermia. The macroscopic appearance of the urine, also the consistency and amount, have been noted by some authorities as being diagnostic as to the source of the hemorrhage. In my opinion this is a very uncertain method of diagnosing its origin or its cause.

In making a diagnosis, the history is very important, as many cases of hematuria are due to infections, the existence of which may be ascertained from the patient. Generally, the diagnosis is made on examination by the process of exclusion. In these days, with special instruments to make a thorough investigation of the entire urethra, and with roentgenography, we are able to ascertain without a doubt in most cases the cause and pathologic condition. By endoscopy we can definitely diagnose all lesions in the anterior and posterior urethra. The more accurate conclusions are arrived at if the examination is made during the period of active bleeding.

Conditions of the prostate may be diagnosed either by urethroscopy or by cystoscopy. Rectal examination reveals the large, smooth, non-nodular prostate, as in adenomas, or the hard lumpy indurated mass of carcinoma.

The treatment of infections such as gonorrhea and nonspecific urethritis is by the usual well known procedures. Foreign bodies should be removed. Papillomas and angiomas should be cauterized by the fulguration method. Ulcers may be treated by the use of fulguration or cautery or the silver salts. In the posterior urethra also the conditions of ulceration, edema, and papillomas of the verumontanum may be removed by fulguration, the actual cautery, or silver nitrate. Keyes recommends acid nitrate of mercury; this is very powerful and must be used cautiously. Stones may be taken out through the endoscope by the use of forceps. If tuberculous or syphilitic ulcers exist, the tuberculous kidneys must be removed and, in syphilis, antisyphilitic treatment given, and the lesion of the urethra will be improved.

In strictures of the urethra, two methods of procedure are available, dilation with sounds or bougies, or internal urethrotomy. Sometimes it may be found necessary to resort to perineal section with external and internal urethrotomy combined.

In traumatic conditions and rupture of the urethra, the latter must be repaired; but, in the former condition, rest and either heat or ice will be of great service in many cases and will probably stop the bleeding. Sometimes placing a catheter in the urethra with a tight bandage or the application of epinephrin solution will accomplish the desired results. Ballenger and his associate inject 50 per cent. hamamelis solution into the urethra and bladder, and have obtained good results in controlling hemorrhage.

A prostatic abscess must be incised or drained either through the perineum, or evacuated by the needle method, or by the intra-urethral sound method.

Stones in the prostate must be removed by prostatectomy or sometimes, if they are in the ducts near the urethra, they may be dislodged by gentle massage.

In cases of seminal vesiculitis, gentle massage, with instillations either of silver nitrate or of protargin mild, and nightly hot rectal irrigations will suffice.

In prostatic conditions of the adenomatous type, rest in bed, hot rectal irrigations, catharsis, an indwelling catheter and morphin give relief, but prostatectomy is the one sure means at our disposal.

In malignant conditions of the prostate, I believe that the average urologist feels that an operative procedure is not always necessary except when the bladder neck is obstructed. The methods of treatment that are now being used are the induction of radium, either of the seeds of the emanations or by implantation of the radium element itself—in the latter method, the element has to be removed after several hours—or by deep roentgen-ray therapy, which has only recently been used and seems to be giving some relief. Some authorities have advocated the use of these methods alternately.

The prognosis of hematuria differs according to etiology and to the location of the bleeding. The prognosis is very good in conditions such as infections, foreign bodies, trauma, and papilloma of either the anterior or the posterior urethra. In pathologic conditions of the prostate, seminal vesicles, epididymis and testes due to malignancy or tuberculosis, the prognosis is not so good. Although some of these patients seem at first to be relieved, in the long run they come back complaining bitterly of the return of their distressing symptoms, and in these cases the prognosis is very bad.

In summing up hematuria of urethral and prostatic origin, I would say that it may or may not be serious. It seems, from the data that I have been able to accumulate, that the causes of hematuria in the urethra are most often due to infections, especially gonorrhea; next in frequency are the foreign bodies or traumatism; third, the prostatic conditions, and fourth, the tumors of the urethra.

36 East Fortieth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LOCKE AND MINOT, HERMAN, CHUTE, LIVERMORE, THOMAS AND MC NEILL *

DR. BRANFORD LEWIS, St. Louis: The pivotal feature of this symposium is to bring to the attention of the general practitioner the absolute necessity of investigating these cases of hematuria early. It is not a new subject to us, but it is always new to general practitioners. While they accept it theoretically, they do not accept it practically; and if this could be brought to them forcibly, as was done by Dr. Thomas, much could be accomplished. It takes some very strong

* The papers of Drs. G. R. Livermore, B. A. Thomas and W. H. McNeill, Jr., together with the discussion, conclude the symposium on the treatment of neurosyphilis. The papers by Drs. E. A. Locke and G. R. Minot, by Dr. Leon Herman and by Dr. A. L. Chute were published last week.

arguments to reach them, and much broadcasting. The radio may help us out eventually. I found one cause of hematuria some years ago, a collection of bones in the prostate. That happened as a result of a fracture of the upper end of the femur in the previous years, with the migration of some spicules of bone into the prostate, which I took out ten years later. I have never heard of such a case and have never seen but one. It might be added to Dr. McNeill's list.

DR. HERMON C. BUMPUS JR., Rochester, Minn.: There is one point regarding so-called essential hematuria that I feel was not sufficiently emphasized; viz., its probable infectious etiology, the result of focal infection. Dr. Quimby has done some excellent investigative work on the subject, and in reading his report one is convinced of the probable infectious origin of the disease. Sections from two kidneys that he removed showed areas of round cell infiltration, and lacked only the presence of the specific organisms to make the picture complete. A few years ago, Dr. Meisser and I attempted to produce the disease in animals by injecting intravenously cultures from the teeth and tonsils of affected patients. I believe the reason we were unsuccessful was that we did not by this method produce a chronic focus. Had we devitalized the animal's tooth and filled the root canal, I am confident the results would have been different. When hematuria occurs from a kidney having a normal pyelogram and function and no tubercle bacilli are found, we do not feel justified in removing that kidney, but instead attempt to allay the bleeding by the injection of silver nitrate, up to 5 per cent., and remove the tonsils and any abscessed or devitalized teeth. The frequency with which a quiescent hematuria has recurred following the removal of a possible focus has seemed to us more than coincidental and indicative of a closer relationship between the two pathologic processes.

DR. DANIEL N. EISENDRATH, Chicago: If there is any need for teamwork between urologists and internists, it is in these cases of hematuria. Often we want the opinion of the internist as to whether a systemic condition is the cause of the hematuria. I was much interested in one point Dr. Livermore brought out; namely, the occurrence of hematuria in movable kidneys, with and without stricture. I should like to ask whether Dr. Chute has seen any of these cases. One point brought out by Dr. Herman in regard to hypernephroma was of interest to me. I have seen many cases in which I felt that I was dealing with a hematuria due to hypernephroma, and at operation found an entirely different condition. In one case in which the bladder distended to the umbilicus, with blood clots in the urine, I found no vesical tumors, but a moderate degree of cystitis, and a congested, enlarged prostate but not enough to account for the hemorrhage. A suprapubic cystotomy was performed, when the bladder filled with large clots, but the patient died a few days later. The necropsy showed generalized infection, with hemorrhages in both kidneys and in the pleural cavity. The prostate and kidney were not to blame for this condition. I wish to report a very rare condition causing hematuria. This is the only clinical case that has ever been observed, so far as I can find. A man, aged 29, was admitted in February, 1924, stating that in June, 1922, he had severe pain in the left leg and some swelling. This continued for fifteen months. Dr. McNealy found symptoms of thrombo-angiitis obliterans, and performed sympathectomy on the left femoral artery in October, 1923. On admission to my service, he gave a history of two attacks of hematuria and of pain over the right kidney during the preceding three weeks. On examination, Dr. Phifer found that a catheter passed as high as the renal pelvis obtained no urine from the right side. The pyelogram showed a marked deformity of the pelvis and calices like that seen in renal tumors. One could feel a nodulated mass over the right kidney. I operated and was disappointed to find that the veins were filled with what was thought to be a yellowish tumor mass, and that the kidney showed advanced necrosis. This is the first clinical case of primary thrombosis of the renal veins on record. We did not make the diagnosis before operation, for we were deceived by the filling defect on the pyelogram.

DR. WILLIAM E. STEVENS, San Francisco: I wish to mention two cases of hematuria and sound a warning regarding the use of some instruments for the removal of ureteral stone. In one case there was profound hemorrhage following removal of the Walther apparatus. The hemorrhage was due to the fact that the filiform tip remained in the ureter. It was firmly screwed on the tip of the apparatus, but it remained in the ureter. The same day, the patient passed the tip. I have not seen many of the so-called "illusive" ulcers. I agree that this is a misnomer and that we should designate the condition interstitial cystitis, which was the term used by Skene in his book on the female bladder and ureter published in 1857.

DR. A. W. NELSON, Cincinnati: It is usually not very difficult for the urologist to trace the source of a hematuria, but to fathom the cause is at times difficult. About five months ago we met a case of that type. A man, aged 21, married, with negative venereal history, four weeks previous had had a perineal abscess opened and drained. At the time that the abscess formed, he noticed pus at the meatus, which disappeared three weeks later. He had been having hematuria for four days when I first saw him. He was thin, wiry, very anemic and nervous. The external genitals were wrapped up in a medium sized bed sheet, which was well saturated with blood from constant dribbling from the urethra. Urethroscopy and cystoscopy failed to reveal the cause of the hemorrhage. A retention catheter was tied in, the hemorrhage was controlled, and the patient was sent to the hospital. The catheter was removed in about thirty-six hours. The day following removal of the catheter, gonococci were found at the meatus, and the etiologic mystery disappeared. Later on we learned that his wife was the cause of the infection. The interesting features of the case are the unusually severe hematuria complicating an attack of gonorrhea, lack of previous microscopic information, and unsuspected source of infection. The paper on purpura rheumatica reminds me of a case of mild hematuria that I saw about ten years ago. A patient had an attack of purpura rheumatica. Cystoscopy revealed several purpuric spots in the bladder. It was probably the first case studied cystoscopically.

DR. JAMES A. GARDNER, Buffalo: The importance of looking for the cause of blood or pus in the urine cannot be repeated too often. Urologists have hammered away at this time and time again, and yet every one of us is seeing patients who have been "cured" two or three times by some internal medicine. This is an interesting subject for the urologist, but serious for the patients, so many are seen so late, too late to do much for them.

DR. E. O. SMITH, Cincinnati: I do not recall having heard any mention made of the effect of drugs on the urinary tract. All of us have seen the effect of the too free use of hexamethylenamin. Many physicians have the habit of telling a patient who says he has trouble with the bladder to take 10 grains of hexamethylenamin three times a day indefinitely. I have seen many bad effects from this. In one case the drug was taken for suicidal purposes. It failed in producing suicide, but it did produce severe hematuria. I have seen a few cases of irritable bladder with microscopic hematuria that were very puzzling. In one case the ovaries had been removed, but the irritable bladder and the microscopic hematuria did not improve. Then a hysterectomy was performed. The patient still had the irritable bladder. On careful cystoscopic examination, nothing was found that would explain this condition; but when we got a complete history of the case we found that the patient was a morphin habitué. I do not believe that malaria has been reported, except in a general way, as being an agent causing hematuria. I recently saw a patient with unilateral hematuria who was in great pain. I was unable to give relief. Finally, I suggested giving quinin and castor oil. This acted very well, and the patient gained 30 pounds (13.6 kg.) in thirty days. He had a recurrent attack several months later, and at that time I studied his blood and found malaria organisms. This again responded very well to quinin therapy.

Before the days of pyelography, a patient came with a mass in the left side of the upper abdomen with marked hematuria. On cystoscopic examination it was established that

the hematuria came from the left kidney, and at operation I found a normal kidney, but an enormous cyst of the spleen. I have also had a case of rupture of a horseshoe kidney, but the patient did not have the stamp on the abdomen of the horseshoe, as did Dr. Herman's patient. This man fell from a height of 75 feet. The horseshoe kidney ruptured, and he sustained a dislocation of one wrist. Dr. Thomas did not include in his list of foreign bodies in the bladder chewing gum. I saw one case. I do not know how the gum got there. I also had a case of marking crayon in the bladder. Another point of interest is the fact that the general practitioner seems to feel that we cannot examine these patients while the hematuria is in progress. That is an erroneous impression. The proper time to make an examination is while the hematuria is going on.

DR. W. G. SCHULTE, Salt Lake City: I had one unusual case of hematuria. The patient was about 40 years of age. Twenty years previously he had had a similar attack. Both attacks lasted three months. The pyelogram and the ureteral catheter gave no results. The second attack subsided in spite of anything I did, not because of it. I did not discover the cause.

DR. P. E. MCCOWN, Indianapolis: The importance of the investigation of hematuria seems to have been thoroughly emphasized. Dr. Herman referred to my paper on papillary tumor of the kidney pelvis. Some of my patients had had attacks lasting more than nine years. The patients who had had the hematuria for some time were reported as having carcinoma. My patient had her first hematuria the year before, and a careful examination of the papilloma showed no evidence of malignancy at that time. The kidney was removed, and later on the ureter was removed. After five years, the patient died. A partial necropsy, below the diaphragm, showed a general carcinomatosis of all organs. This, I think, emphasizes the necessity of early investigation of hematuria. The cases of hematuria of many years' duration were all malignant. Those that were seen early were reported as benign papillomatous growths of the kidney pelvis. We know that papillary growths of other parts degenerate into malignant growths, and may expect this also in papilloma of the kidney pelvis.

DR. TERRY M. TOWNSEND, New York: Urethral hemorrhage is a symptom or sequel of traumatism, not a disease entity. To the patient, however, it is a source of alarm quite out of proportion to its immediate dangers. Up to 1906 I could not find any fatality from hemorrhage from the anterior urethra recorded in the literature. When the bleeding occurs posterior to the compressor muscle, it may be most alarming. I have had one fatality, and narrowly escaped having another from this cause. The first patient succumbed to an exhausting hemorrhage following perineal prostatectomy. Both he and his family would not consent to a suprapubic opening for packing. The second man was exsanguinated following urethrectomy for stricture. He was saved by prompt and liberal transfusion and packing. Hemorrhages from the anterior urethra may be controlled by tamponades, but those of the deeper urethra and vesical neck require combined suprapubic and perineal cystotomy, with through and through packing. Much has been said about educating the general practitioner with reference to the source of hematuria as a sign-post on the way toward urologic trouble, but the reverse must also be kept well in mind, that the absence of blood corpuscles in the urine does not spell complete urologic health. In our educational propaganda, I feel that we should make clear the fact that urologic disease is not invariably accompanied by hematuria.

DR. W. B. DAKIN, Los Angeles: I have been in the habit of asking many of these hematuria patients whether they are taking any medicine, and frequently have found that they have been taking large quantities of hexamethylenamin, as was mentioned. One patient had been in the habit of taking the drug every once in a while, principally because he felt that it would not be necessary to call some one in to consider his urinary symptoms. Nearly every time that man has had any urinary symptoms he has taken hexamethylenamin, and each time he has had hematuria.

DR. HERMAN L. KRETSCHMER, Chicago: This discussion emphasizes the fact that while the largest proportion of these patients suffer from organic disease of the genito-urinary tract, many of them suffer from general disturbances, which call for cooperation with the internist. I was much interested in Dr. Locke's cases. He mentioned a case of aleukemic leukemia. If I understood him correctly, it is a very rare cause of hematuria, but one that we should bear in mind. I have seen one such case. My impression of this symposium is this: That the most frequent causes of blood in the urine are about five. According to their relative frequency they are: stone, tumor, tuberculosis, infection and nephritis. If we can bear this group of causes in mind, we shall be able to determine from the history and physical examination what the most likely causes of hematuria may be in a given case. The other causes that have been mentioned, both rare and otherwise, extra-urinary causes, such as brought out by Dr. Locke, must all be considered, but I think that if we bear in mind that the most frequent causes are also very serious causes, we may get these patients in earlier, when treatment can offer a cure. Dr. Bumpus brought out the question of infection, and this is very important. I have seen several cases in which removal of the tonsils removed the cause of the hematuria. Another point is that a patient may have two distinct organic lesions, either one of which may cause the bleeding. A patient may have an enlarged prostate, and if our examination stops at this point, we may reasonably assume that the hematuria is due to the enlarged prostate; but some patients have not only a lesion in the lower urinary tract but also in the higher, such as a stone or tumor of the kidney or ureter.

DR. ARTHUR L. CHUTE, Boston: Replying to Dr. Eisendrath's question as to whether I have seen hydronephrosis bleed, I have. I remember an instance occurring in a physician of about 40 who had a very considerable hemorrhage from a hydronephrosis. His hydronephrosis was due to an extra vessel. This vessel was cut and the kidney fixed in place. I saw the man last autumn, five years after operation; there had been no further trouble.

DR. LEON HERMAN, Philadelphia: I wish to express my deep appreciation of the courtesy of the gentlemen entering into this discussion and to say that I think we have discharged our obligation to the general profession regarding hematuria quite well. We avoided with studied care the question concerning the best plan of procedure in those cases in which the cause of bleeding cannot be demonstrated urologically. Dr. Kretschmer showed that in many instances we fail to discover not only the cause but also the origin of the bleeding. This is true beyond question; but it is not well to stress this point, for in every case of bleeding the responsibility both for diagnosis and for treatment should be the urologist's. In cases in which there is bleeding from both kidneys without demonstrable cause and in which the function of the kidneys is normal, the condition cannot be considered surgical; but if such bleeding is unilateral, and especially in cases in which there is a large renal pelvis that may be explored, I think an exploratory operation is advisable. In cases in which the pelvis is small, the renal function normal and there is no infection present, I think the more conservative plan is indicated. In the past we have been too conservative, perhaps, in advising renal exploration.

DR. GEORGE R. LIVERMORE, Memphis, Tenn.: In answer to Dr. Bumpus, I mentioned infection as one of the causes of hematuria, but did not advocate radical surgery, unless there was definite indication for it. I said that I condemned the use of pelvic lavage as a treatment for so-called essential hematuria. If one can find a definite cause for the hemorrhage, the cause should be treated. Dr. Eisendrath mentioned falling kidney, and that was brought out in my paper. I saw a case of chewing gum in the bladder. A man had taken ordinary chewing gum, coated it with petrolatum and inserted it into his urethra as a method of masturbation. Dr. Joseph McCarthy told of a very interesting case in which a hairpin in the bladder was caught in the mucosa and the loop hidden from view. When he took hold of it with the cystoscopic forceps and made traction, it was seen that the loop was

caught and the bladder wall would pull up each time. The patient said that she had swallowed the hairpin. Roentgenograms showed that the hairpin loop was apparently outside the bladder. At operation the intestine was found adherent to the bladder; as he called it, a "kiss ulcer," without any evidence of gas or fecal material escaping into the bladder. They then opened the bladder and found the hairpin fastened in the bladder wall. In handling the hairpin it tore through, but there was no hemorrhage or apparent injury to the intestine, and the woman made a good recovery.

DR. B. A. THOMAS, Philadelphia: In answer to the comment by Dr. Smith, I cannot swear that the material in the bladder was tallow. I have only the pathologist's report, but this to me was acceptable and trustworthy. The patient said that he took the material from an ordinary candle and stuffed it into the urethra. I should have said in this connection that the ball of tallow was encrusted with urinary salts, which gave it the appearance of a calculus; perhaps this was the reason why it lay on the trigon instead of floating on the fluid content of the bladder.

In closing, I wish to cite a case of hematuria, the renal origin of which I think was not mentioned in this symposium. Clinically and at operation it was a case of hematonephrosis, the first I have ever seen, due to a partial stenosis or stricture of the extreme upper end of the ureter, causing retention of blood clots in the renal pelvis arising from a chronically inflamed and infarcted kidney. The distended pelvis was almost the size of the kidney proper. I agree with Dr. Chute that here we have a stricture of the upper end of the ureter, undoubtedly of renal origin, and not due to a blood-borne infection localized through the periureteral lymphatics, as stressed by Dr. Hunner.

DR. WALTER H. MCNEILL, JR., New York: The case reported by Dr. Livermore is new to me. I have never seen a case in which there was an opening into the prostate. I believe that I brought out the point that examination of the urologic tract is preferably made while hematuria is going on. I might report a case as to the etiology of a foreign body in the bladder. A man came into the hospital complaining of hematuria and frequent urination. A cystoscopic examination was made and the bladder found to be very dirty. It was also thought that a stone was present; but, owing to the marked cystitis, we could not determine this positively. The roentgenogram showed a shadow about the size of a walnut, ringlike in appearance and the center much lighter than the outer part. Suprapubic cystotomy was performed and the stone removed. The center of the stone was composed of cacao butter and paraffin. This cacao butter and paraffin got into the bladder in the following way: The man had had a gonorrheal infection some years before and had used urethral suppositories, the base of which was cacao butter and paraffin. These suppositories melted at body temperature and ran back into the bladder, forming a nucleus which became covered with the urinary salts, and in this way formed this unusual vesical calculus.

Purpose of Medical Education.—We should protest against the custom of designating the fundamental branches of medicine as "scientific," in contrast with the "clinical" subjects, which by implication are thereby considered unscientific. The methods used are, or should be, essentially similar in all parts of the field of medicine. The primary aim of the practitioner is to interpret and control the clinical phenomena. The purpose of medical education is to give the training which makes this possible, through a working knowledge of the human organism under both normal and abnormal conditions. Mastery of the basic data and their utilization at the bedside alike require the persistent application of the same scientific methods by which all knowledge is discovered. While medical instruction cannot possibly foresee all the specific problems which will arise in practice, it can and should provide the methods of procedure by which the future practitioner will be able to meet and solve these problems in the most effective manner. The more thoroughly medical practice becomes imbued with the spirit of scientific research, the more successful will it be.—C. M. Jackson: *Science* **60**:232 (Sept. 12) 1924.

MAINTAINING LENGTH AND POSITION IN THE TREATMENT OF COMPOUND FRACTURES*

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AND
J. E. M. THOMSON, M.D.
LINCOLN, NEB.

The importance of maintaining length and position in the treatment of compound fractures is in many cases overlooked by the surgeon in the supposed interest of wound treatment. This accounts for many of the cases of malunion of the fragments, shortening of the limb,

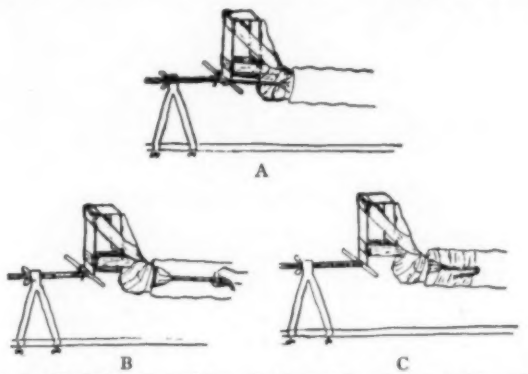

Fig. 1.—Technic of applying fixed traction by moleskin adhesive traction straps embedded in the plaster cast, as used for fractures of the lower extremity: *A*, traction established by muslin bandage and rope ends of leg straps attached to pulling device of fracture table; *B*, rope end turned back ready to be embedded in cast; traction continuously maintained by muslin bandage; *C*, ropes embedded in cast; fixed traction established; muslin bandage may be removed, and cast applied to foot.

unduly prolonged deformity and disability which can only be partially corrected by secondary operation. Such extensions of the period of convalescence, economic loss to the community and additional medical and hospital expense are factors of equal importance to all, but have attracted attention particularly in the treatment of those injured in industrial occupations. These facts have been impressed on us as we are called on frequently to examine and treat such cases months or even years after the accident has occurred. We see disabilities of from 50 per cent. to complete loss of normal function after compound fractures, with angular and overriding deformities of bone, or only partial union, due to lack of apposition and loss of bone substance. Usually, also these patients have a chronic osteomyelitis dating back to the time of injury. In most of the cases, relatively extensive operative procedures must be employed in the late stages in order to bring about healing and better function of the limb. It is our belief that these patients should have the fragments brought into proper apposition and alinement as early

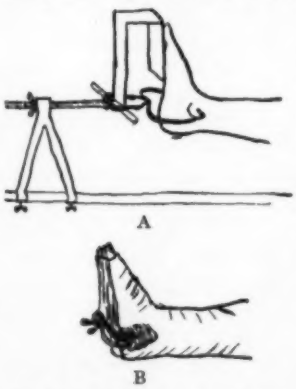

Fig. 2.—Technic of applying fixed traction by the use of ice tongs embedded in the plaster cast: *A*, ice tongs applied above malleoli and attached to pulling device of fracture table; *B*, ice tongs embedded in cast.

* Read before the Section on Orthopedic Surgery at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

as possible after a compound fracture has occurred, and maintained there by a fixed traction method. It has been demonstrated that fixed traction and immobilization methods are available which allow wound treatment and give an opportunity for early healing of the parts, and which also assure full length of the extremity and a minimizing of the period and the amount of disability.

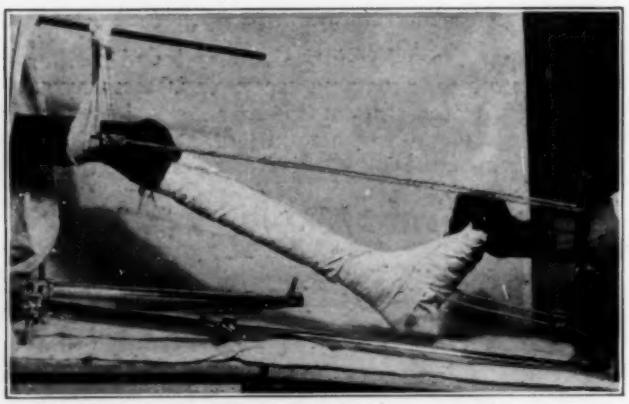

Fig. 3.—Traction established by the use of a pin through the lower end of the femur, just above the condyles (a cadaver was used to illustrate the technic in the series of illustrations).

In civilian life, ordinarily compound fractures are but puncture wounds, and after careful cleansing, can be reduced by methods applied to simple fractures. If these are kept absolutely at rest in plaster casts or splint, they can be treated as simple fractures with little probability of complications. Should infection occur, drainage can be established through a window in the cast without disturbing the bone fragments. Those severely lacerated and mangled injuries due to gunshot wounds, explosive accidents and collisions, should be given adequate débridement as early as possible. This also allows the surgeon to obtain alinement of the fragments and even in those cases in which there is extensive loss of bone, full length of the limb can be maintained by fixed traction. Later, when healing has occurred, a bone graft can be supplied to fill in a gap if one exists without loss in the length of the extremity.

By fixed traction is meant traction that is applied when the fracture is reduced and so immobilized or fixed in the immobilizing apparatus that it and the fractured extremity remain undisturbed and unaltered until at least preliminary healing has taken place. The exact technic as employed by us is as follows: For compound fractures of the lower extremity, moleskin adhesive plaster traction straps are used, 3 inches wide and varying in length for fractures of the leg or thigh. The frayed ends of a strong, pliable rope are sewed into the distal end of the straps to be used for traction purposes. The straps are applied to both sides of the limb well up to the site of fracture, and bandaged into place with muslin bandages. The patient is anesthetized on a fracture table; traction is instituted by a muslin bandage about the foot, and the rope ends are attached to the traction device by which a pull is made and continued until the limbs are of equal length. The cast is applied in the usual manner, as low on the extremity as the ankle. After the plaster has sufficiently set, traction having been continuously maintained by the foot bandage, the traction ropes are cut from the holding device, turned back against the leg portion of the cast, and embedded in the cast by several turns of plaster bandage, thus anchoring them and maintaining the traction. When the plaster is set, the muslin bandage anchoring the foot is removed, and the foot is then wrapped in sheet wadding, and the cast applied with the foot at a right angle to the leg.

In some instances, we have found it necessary to use ice tongs or pins applied just above the condyles of the femur, at the ankle or through the heel. This may be done at any time when the fracture is near the joint, and when it is difficult to maintain traction and position by other means. We do not use the pin in the ankle, but in several cases have put it through the os calcis. We merely embed the pin or tongs in the cast, thus fixing the constant pull of the appliance, and securing the lower fragment in correct rotation. This is a method of greatest importance in those cases in which exact position as to rotation, eversion or inversion of the foot or lower fragments is difficult to secure or maintain. Such exact position can be secured and accurately maintained by manual control of the ice tongs or pin until it is "frozen" into the cast in just the position desired as to length and rotation. Ice tongs and pins are often the only devices that will give this kind of control in compound fractures. Attempts to secure such control by the insertion of bone grafts, plates, screws, wire, etc., into an infected field can be mentioned only to be condemned.

We have found a number of cases in which, after full length was accomplished, exact apposition of the fragments could not be obtained by traction alone. With these, before attempting an extensive operative procedure, direct leverage applied to the fragments with an instrument has given splendid position. Full length was first attained on a fracture table; then, through the compounding wound or a small incision directly over the fractured fragments, an instrument was put in and used as a lever. With the index finger as a guide, the lever is forced between the ends of the fragments, and leverage applied to bring them into apposition. After this is accomplished, the lever is left in position for a few days, embedded in the plaster-of-Paris cast.

Fig. 4.—Traction established by the use of ice tongs applied to the lower end of the femur just above the condyles.

For certain fractures, this direct leverage can be accomplished with the extremity under the fluoroscope. The lever is introduced through a small stab wound over the fractured fragments, and, by the use of the fluoroscope, the fragments are levered into position and the lever is embedded into the plaster cast as described. This method of direct leverage in the reduction of com-

pound fractures was described by Thomas [1] of Liverpool, almost fifty years ago. To his description has been added the important element of fixation of the outer end of the lever in the cast. The lever may be removed when the cast is applied, provided the position of the fragments is secure, or at the end of ten days or two weeks, as the position of the fragments by that time is usually safe.

Compound fractures of the humerus are treated in a body arm spica with the flexed forearm used for traction, the countertraction being established against the shoulder. In such cases, the position, during the application of the cast, is maintained by moorings of muslin bandage on the traction table. After the cast is applied, the bandages are cut and removed. Forearm fractures are placed in plaster from the finger tips to the axilla, the forearm flexed to 90 degrees in semisupination and the hand in dorsiflexion, traction being maintained through the flexed elbow against the biceps portion of the arm and the dorsiflexed hand.

In the employment of our technic for the treatment of compound fracture wounds, which we have fully described elsewhere, the wound is cleaned up or

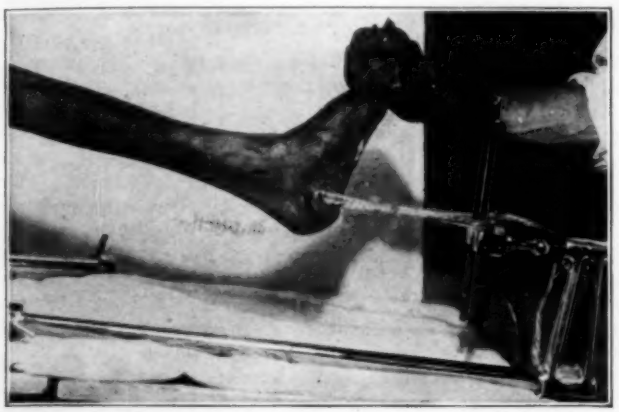

Fig. 5.—Traction established by the use of a pin through the os calcis.

débrided, filled lightly with a petrolatum gauze pack, and is covered under the cast with a dry, sterile pad. After reduction is done in this way, our patients are kept in bed with the extremity in its cast or splint swung from a Balkan frame for at least one week, or until danger of complications has gone by. In this way, irritation to the wound as well as to the fracture is minimized. The danger of bacterial invasion of the tissues is greatly reduced. Unless there is marked rise in temperature, the wound remains untouched for from two to six weeks, at which time a window is made over the wound, and the first dressing is removed. During this procedure, the position of the fragments is undisturbed. Usually, we find that the dressing has been pushed out, and the wound is healed, or at least it is filled with healthy, granulating tissue requiring simply a second dressing. Usually, the amount of discharge is inconsiderable. Even if there is some pus, however, the wound area should be dressed aseptically in the manner described, and without disturbing the limb or the fixed traction device. The discharge in itself is harmless, and the fixation should not be changed except for severe pain, swelling, elevation of temperature or other signs of extensive inflammatory complications.

1. Thomas, H. O.: Contributions to Surgery and Medicine.

Our experience in treating fractures by this method is that the period of healing is only a little longer than that of simple fractures, and the ultimate function of the limb is much more satisfactory than by other methods we have employed. Healing takes place with full length to the extremity, and with the fragments in correct position. Physiotherapy and early movement

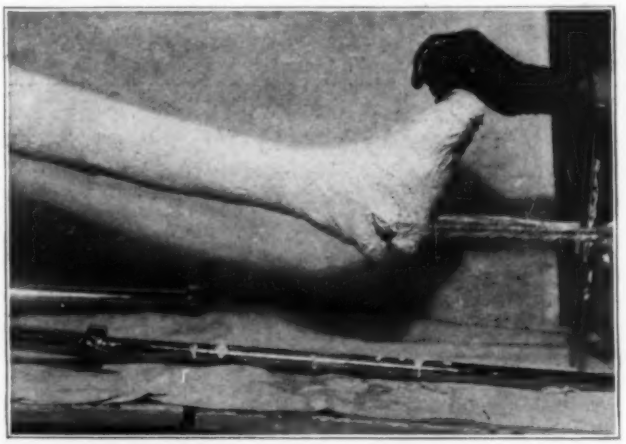

Fig. 6.—Fixed traction established by a pin through the os calcis embedded in the plaster cast; the rope traction still attached to the holding device of the fracture table while the cast is setting.

of the limb can be started. Secondary operative intervention is seldom necessary, except when there is extensive loss of bony substance.

ABSTRACT OF DISCUSSION

DR. F. G. DYAS, Chicago: Introducing a lever and leaving it in situ is comparable to introducing the angiotribe in hysterectomy, leaving it on the broad ligament stumps; or in nephrectomy, leaving it on the pedicle of the kidney and removing it after several days. The principle involved is that of a foreign body in the tissues. Any tissue will tolerate a considerable amount of infection in the absence of a foreign body, but with the introduction of a foreign body the tissues are devitalized and do not resist infection well. The Steinman nail has wonderful advantages. The nail can practically always be introduced under local anesthesia. This is especially true when it is introduced through the os calcis. The tissues are infiltrated on the outer and inner side, an incision is made down to the os calcis, and the nail is held by forceps and introduced through the solid block of bone. It is not necessary in fractures of the tibia to introduce the nail through the tibia itself; it is much better to introduce it through the os calcis. Osteomyelitis does not readily occur in the os calcis, as it does in the long hollow bones. Furthermore, the os calcis is not readily split. I believe that one can have better nails by making them with long, slender points from steel rodding. They should not be thick. The optimal time for the nail to

Fig. 7.—Fixed traction established by a pin through the os calcis embedded in the plaster cast (plantar view).

remain in the bone is between eighteen and twenty-one days. If one attempts to remove it before the expiration of eighteen days, the nail is so solidly embedded in the block of bone that it is difficult to remove. If allowed to remain more than twenty-one days, the pressure necrosis tends to cause it to cut through. No very serious consequences result if this does happen. Iodin should be squirted over both sides of nail; then it is grasped with 8-inch forceps, and with a little twist, the nail will usually lift out nicely. The nail hole is injected with iodin, covered with collodion, and is ready for the cast. The os calcis answers the purpose because

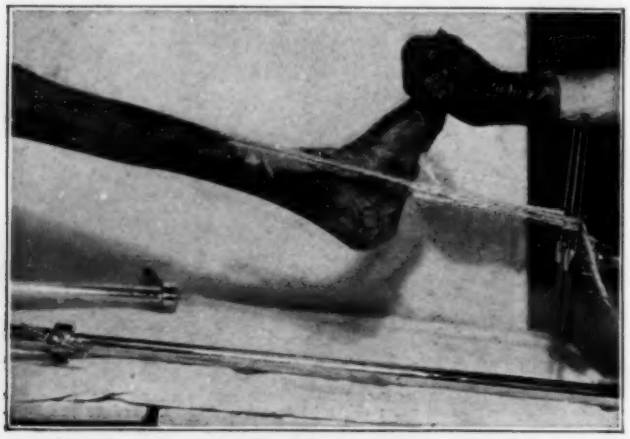

Fig. 8.—Traction established by a pin through the tibia.

of its ligamentous attachment to the lower end of the tibia. These lateral ligaments are so strong that from a mechanical standpoint it is just as though the nail had been driven through the lower portion of the tibia itself. Furthermore, introduction of the nail through the tibia is liable to involve some of the great vessels or nerves. In the introduction of the nail through the femur, we have to use care not to encroach on the epiphyseal line. It has the great advantage in compound fractures that all portions of the limb are readily accessible. A cast applied to a compound fracture, badly infected, is bound to be contaminated with pus. The nail may be used, in addition to traction, as a lever to command rotation of the part. It is easily done with a limb suspended in a Balkan frame, by means of pulleys, sand bags, and weights attached to either the outer or the inner end of the nail. Introduction of a nail confers the greatest comfort on the patient.

Dr. F. J. Gaenslen, Milwaukee: The two essential points in this paper on the treatment of compound fractures which deserve emphasis are maintenance of length and position by the fixed traction method and careful cleansing of the wound. Absolute rest is a prime essential in Nature's fight against the inflammatory processes accompanying compound fractures which are at least potentially infected. The slightest movement will tend to break down the local barriers to the infection and will allow an extension of the inflammatory process, while the constant movements permitted in ill fitting appliances will serve to assist in the mechanical diffusion of the infected organisms along the fascial planes and through the surrounding soft tissue generally. I also believe that the plaster cast, well applied, is better than any splint yet devised, for the reason that a snugly fitting cast will allow less motion. I have had no experience with the use of the nail as a lever in reducing compound fractures and leaving this nail in situ. I should like to know what the authors' experience has been with reference to infection associated with these nails or pins used in this manner. I have read a previous paper by Dr. Orr on the petrolatum pack in osteomyelitis, and believe that the same principles used there can logically be applied in the treatment of these infected fractures. Careful cleansing is a prime essential; without it, no treatment of osteomyelitis or of compound infected fracture will avail. Traction by means of a nail through the os calcis is very efficient. In fractures of the femur in which ice tong or pin traction may be indicated, I prefer to apply the tongs to the tibia on either side of the tibial tubercle where the bone is hard and compact. The removal of the nails is very simple. I use them frequently in resection of the knee or in arthrodesis of the ankle, and leave them in place for six weeks. If the head of the pin is grasped with straight forceps, one tap of the mallet on the projecting tip of the forcep is sufficient to deliver the nail without any difficulty whatever. I wish to subscribe to absolute fixation and careful cleansing, and believe that the methods outlined will render unnecessary many secondary operations.

Dr. John P. Lord, Omaha: The outstanding feature of this paper is the establishment of definite methods for maintaining length. It is opportune that the profession at large establish more definite and systematic methods of treatment of fractures to maintain the length. Too many are content to institute "by guess and by gosh" methods that perhaps will maintain length—and perhaps they will not. We all recognize that the early reduction and maintenance of fractures in proper position is the first essential of the proper treatment of fractures of all kinds. This is especially true of compound fractures. We should not be "mussing around" compound fractures from day to day. We should do a definite procedure, make a definite fixation, bide our time and let Nature do the rest.

Dr. P. P. Grosso, Chicago: We do not always get fracture cases immediately after injury; sometimes several weeks have elapsed, callus has formed, and the bones are in malposition. Some patients will not submit to an open operation, and in cases in which there is an angulation, simple, direct traction is not always satisfactory. I have successfully corrected the angulation by the application of a plaster-of-Paris cast and a simple device. A plaster cast is applied in the usual manner about one-fourth inch in thickness; this is allowed to dry, then a circular cut is made through the cast at the site of the fracture, and a single jointed iron bar is embedded into the cast by means of a few rolls of plaster-of-Paris bandages. The joint allowing movement only in the desired direction is at the site of the fracture. At both ends of the cast, a small piece of rope is fastened, the loose ends of which are fastened to two turn buckles. A small block of wood is nailed to a piece of broom handle about 10 inches long. This is placed at right angle over the cast

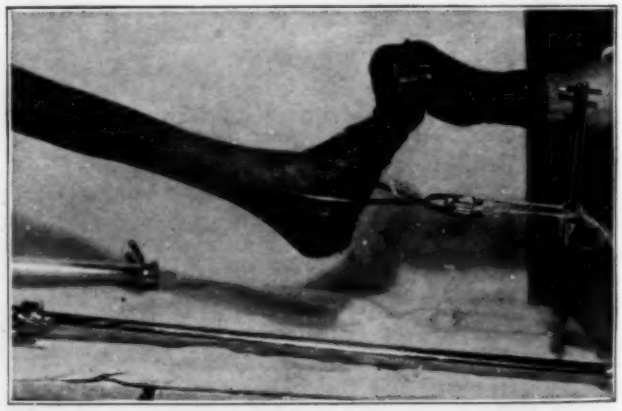

Fig. 9.—Traction established by ice tongs applied just above the malleoli.

at the site of angulation to act as a fulcrum in the manner of a suspension bridge with the turn buckles on each side. The pull is gradually increased daily by screwing up on the turn buckles until the desired results are obtained, noted by roentgen ray. Then the cast is immobilized at the site of the circular cut with plaster-of-Paris bandages, and the cast allowed to remain about six weeks. The great advantage to this method is that the pressure exerted is distributed uniformly over a large area, thereby eliminating pressure sores, which are always troublesome and are a frequent complication with other forms of traction.

DR. J. E. M. THOMSON, Lincoln, Neb.: I regret that Dr. Dyas apparently missed the principal points I wished to make. These are wound treatment, fixation and maintaining full length. These points Dr. Gaenslen emphasized. The use of local anesthesia in these compound fractures and the introduction of any kind of plate or device for retention of the fragments indefinitely we wish to condemn. We never use nails, plates and screws in a compound fracture, and when they are used in simple fractures, they should be left in for six weeks, at which time they are easily removed. Nails cannot be used as a lever because they are too short. The lever should be long enough and strong enough to give absolute control of fragments while levering and manipulating them. I do not want to convey the impression that we use a lever promiscuously in the correction of compound fractures; but in those selected cases in which we have used it, invariably it can be removed after the cast is applied, without disturbing the alinement of the fragments. It is very readily removed at any time through a small window in the cast, should the slightest evidence of infection develop. In reply to Dr. Gaenslen's question in regard to infection around the pin, or tongs, we have never had any. If there is any evidence of infection, we take the nail out immediately. It is preferable, however, to remove it after the cast is applied. This is usually done without danger of losing position. Treatment of fractures should be dealt with under certain fixed principles, instead of dealing as individual cases. Our army experience impressed that on us, and there is no reason why we cannot apply these principles in our civilian practice. I wish to bring out three facts which Dr. Gaenslen has brought out; these are of importance in attaining the best end-result in the treatment of compound fractures: first, fixed traction, second, the importance of cleaning wound and letting alone, and, third, maintaining full length.

CHANGES IN THE LIVER ASSOCIATED OR COINCIDENT WITH INFECTION OF THE APPENDIX

PRELIMINARY REPORT *

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Professor of Surgery, New York Post-Graduate Medical School and Hospital
NEW YORK

The appendix is a derivative of the midgut, and, phylogenetically, it is a vestigial structure serving no useful purpose. In its ontogenetic development, it exhibits peculiar anatomic characteristics. It is a blind pouch preeminently endowed with lymphoid tissue; having a constricted orifice of entry and exit—the valve of Gerlach—nourished by single arterial blood supply and intimately connected with the lymphatics of the upper abdomen, kidney and retroperitoneal space.

The appendix is situated subjacent to the ileocecal sphincter, the latter representing a biologic partition in alimentary function, and a place of normal stasis of intestinal contents. Anatomically, the appendix is placed within an area of greatest bacterial activity, with a maximum degree of fluidity of the intestinal contents. It is at all times prone to infectious processes, and in its variations, from minor degrees of infection to gross lesions with extravasation of intestinal contents, it is capable of producing pathologic changes locally and at remote points.

Physiologically, the appendix is intimately related with the digestive and assimilative functions of the stomach and small intestine, respectively, and from a clinical point of view the association of pathologic conditions in the appendix with upper abdominal lesions has been intimated by various authors. MacCarty [1] has stated that a consideration of the average duration, from the onset of symptoms to operation, in appendicitis, cholecystitis and cholelithiasis, reveals, respectively 2, 4.9, and 6.5 years. The average duration of cases of cholecystitis lies between the average in appendicitis and cholelithiasis. Eusterman [2] reports that, in 1,078 cases of gastro-intestinal ulcer, 40 per cent. exhibited disease of the appendix. Crispin [3] observed hematemesis in 5 per cent. of the cases of gallbladder infections and in 2 per cent. of the cases of disease of the appendix. Deaver [4] more recently found that 90 per cent. of his cases of disease of the gallbladder showed demonstrable pathologic changes in the appendix, and 61 per cent. of his ulcer cases, pathologic

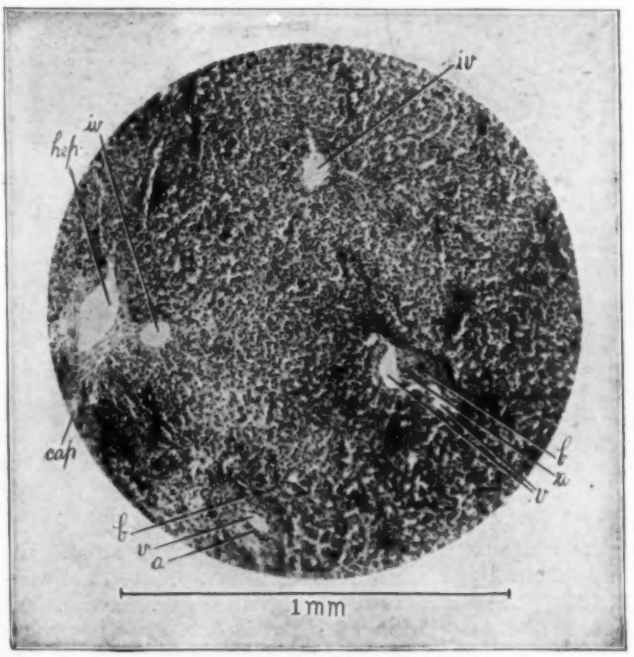

Fig. 1 (Case 2).—Long standing interstitial reaction with slight present activity: external capsule (not entirely included in the picture) slightly indented in the vicinity of a branch of hepatic vein and showing an excess of wandering cells in its fibrous tissue; *hep*, branch of hepatic vein; *iv*, intralobular vein; *a*, branch of hepatic artery; *b*, bile duct; *v*, branch of portal vein.

changes in the appendix. Adami [5] and his co-workers have demonstrated the comparative ease with which living bacteria penetrate or traverse mucous surfaces. This transmigration of bacteria through living membranes would be obviously accelerated in the presence of any pathologic process that would impair the tissue vitality or physical integrity of the membrane. Roger [6] demonstrated the increased ability of bacteria to penetrate the mucous membrane of the cecum after feeding animals ground glass with their food. McCallum [7] has been able to demonstrate peptonate of iron given by mouth in the leukocytes and macrophagocytes of the

* From the Department of Surgery, New York Post-Graduate Medical School and Hospital.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

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2. Eusterman, G. B., in Collected Papers of the Mayo Clinic, Philadelphia, W. B. Saunders Company **7**, 1915.
3. Crispin, E. L., in Collected Papers of the Mayo Clinic, Philadelphia, W. B. Saunders Company **8**, 1916.
4. Deaver, J. B., and Ravdin, I. S.: End-Results of Five Hundred Cases of Chronic Appendicitis, Arch. Surg. **6**: 31 (Jan.) 1923.
5. Adami, J. G.: J. Iowa State M. **2**: 6 (Dec. 15) 1912.
6. Roger, H.: Presse méd. **30**: 14, 1922.
7. McCallum, cited by Adami (Footnote 5).

lymph glands or cells of the liver a few hours after feeding. Nichols and Ford [8] were able to demonstrate that most of the bacteria that pass through the mucous membrane of the intestinal tract undergo phagocytosis and lysis within the body of leukocytes or in the cells of the adjacent lymphatic glands, but that some are able to escape the lethal activities of the body cells and make their way to the liver through the tributaries of the

Fig. 2 (Case 3).—Slight thickening of Glisson's capsule and marked round-cell infiltration of the periportal fields, particularly in one near the surface. The periportal field is thickened and diffusely infiltrated by lymphocytes. Also the smaller periportal fields inside the liver tissue show round-cell infiltration.

portal system, and are subsequently eliminated in the bile. Flutterer [9] has demonstrated living bacteria in the bile within a few minutes after injection into the tributaries of the portal veins. Graham [10] has drawn attention to the association of hepatic changes with operatively proved cases of cholecystitis.

The appendix stands in anatomic relationship to the upper abdomen in three distinct ways: (1) by continuity of peritoneal tissue; (2) by the canalicular association of the lymphatics, and (3) by direct transportation of material through the ever widening tributaries of the portal veins. The fact that the liver is interposed between the portal system and the general circulatory system would result in the liver receiving the main insult from any deleterious material, biotic or chemical, that might be absorbed or conducted to it by the portal system.[11]

Probably no organ within the abdomen is capable of producing such widespread peritoneal reactions and in so many diverse ways as an acutely infected appendix. The degree of peritoneal reaction is proportional to the acuity of the infection and, obviously, minor degrees of infection of the appendix will produce the same character of peritoneal reaction, which will vary only in quantity and kind. Long before there is a perforation or an extravasation of intestinal contents from a diseased appendix there is a peritoneal irritation, represented in an advancing zone of nonpathogenic anaerobic bacteria, the purpose of which is to bring forth the normal fibrinoplastic reaction of the peritoneum. In and about this infected area, the omentum becomes attached or contiguous with it. The omentum is peculiar in its vascularity, containing many converging veins of great length that are thin-walled and not adequately supported by fibrous connective sustaining tissue. Eiselsberg [12] demonstrated how rapidly the omental veins are thrombosed, and an epiploitis after hernia [13] operations is a well substantiated clinical observation. Wilkie [14] demonstrated the ease with which injury and thrombosis of the portal vein occurred. On mere ligation of some of the omental veins, he produced punctiform hemorrhages in the stomach in 30 per cent. of his animals and, in 50 per cent., hemorrhagic infarcts in the liver. This phenomenon was particularly liable to occur following the ingestion of food, for there is contraction and dilatation of the veins of the stomach and small intestine during the varied cycles of digestion. With the loaded stomach, the gastric veins attain a diameter four times greater than that which obtains in a fasting stomach. If aseptic thrombi in omental veins showed these preeminent tendencies toward upper abdominal embolism, how much greater must be this embolic tendency in a septic thrombosis. There is no definitely established route for the portal blood to the liver. The injection of oil globules in the veins at the right hand fringe of the omentum can be followed directly to the

Fig. 3 (Case 4).—The picture indicates a reaction to serious toxic injury, apparently derived from the diseased appendix: *a*, branches of hepatic artery; *v*, branches of portal vein; *b*, bile ducts; *cv*, central intralobular vein; *es*, eosinophilic zone of deeply stained somewhat compressed hepatic columns containing deeply stained nuclei of irregular size.

right gastro-epiploic vein and, as a rule, the oil globules are carried to the liver directly. However, the low blood pressure within the portal system, together with

8. Nichols, A. G., and Ford, cited by Adami, J.: On Latent Infections and Subinfections and on the Etiology of Hemochromatosis and Pernicious Anaemia, J. A. M. A. **33**: 1573 (Dec. 23) 1899.
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11. Heyd, C. G.: S. Clin. N. Am. **3**: 373 (April) 1923.
12. Eiselsberg, F.: München. med. Wchnschr., 1905.
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the absence of valves within the venous tributaries, may permit occasional divarications in the course traversed by the venous blood from the omental veins. Oil globules could be made (by coughing or holding the breath) to move into the left gastro-epiploic vein to form splenic infarct, or to flow through the transverse gastric veins to the coronary vein at the lesser curvature.

In the course of studies [15] on the liver in relation to chronic abdominal infection, we were surprised to note the frequent association of various degrees of hepatic change in the presence of chronic abdominal infection. In association with Drs. MacNeal and Killian, I [16] undertook to determine whether, in undoubted cases of so-called chronic appendicitis there was a definite and sequential change in the histology of the liver. A chronically infected appendix was construed as one that showed either polymorphonuclear or round cell infiltration, together with varying degrees of fibrous tissue hyperplasia or obliteration by fibrous tissue replacement. The appendix, in the cases representing our study, was the only organ at fault, and was proved to be the cause of the symptoms of which the patient complained. All the cases were without gastro-intestinal ulcer and without any demonstrable disease of the gallbladder. The association of thrombosis of the portal vein with acute septic conditions of the right lower quadrant has been of such frequent occurrence as to require no comment. We are inclined to believe that there is a constant absorption of bacteria or their by-products by means of the venous tributaries of the portal system and a subsequent conduction to the liver and upper abdomen. The lymphatics from the cecum ordinarily terminate in the group of glands about the superior mesenteric veins.[17] Braithwaite [18] was able to inject the lymph channels from the cecum up to and over the pancreas and stain the lymph glands in the crescent fold of the duodenum on the anterior surface of the pancreas. Frank [19] was able to inject the postpancreatic group of glands in that area between the duct of Santorini and the duct of Wirsung, and if these two authors, by experiments, one from below and the other from above, could infect the glands of the pancreas, both front and back, then certainly the stomach and duodenum could be infected from any chronic abdominal infection by means of lymphatic anastomosis as depicted by Bartells. Craig, in a study on the lymphatics of the intestines, was able to carry infectious material from the first and second portion of the duodenum up to and along the lesser curvature of the stomach. Sweet [20] and Pfeiffer have shown the very intimate association of the appendix, through lymphatic channels, with the hilum of the right kidney. Bacteria carried to the liver do not undergo proliferation but are destroyed in the liver tissue, resulting in a chromatolysis and vacuolization of the liver cells, with the formation of free pigment. Coincidentally, there is an invasion of round cells or polymorphonuclear cells, or both, and the total result is a small area of local degeneration or necrosis. This is followed by absorption of the degenerative cellular débris and the development of fibrous tissue, with an increase in the

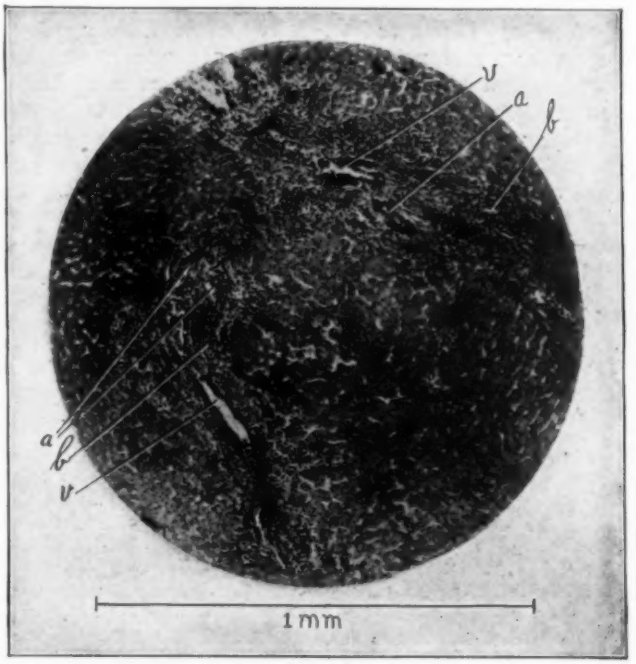

Fig. 4 (Case 6).—Severe acute diffuse hepatitis of portal origin: *v*, portal branches; *a*, branches of hepatic artery; *b*, bile ducts. The periportal connective tissue is edematous and richly infiltrated with polymorphonuclear leukocytes, eosinophilic leukocytes and especially abundant mononuclear (endothelial) leukocytes. Mitotic division figures are present in the endothelial cells. The endothelium of the sinusoids is swollen and in many places separated from the liver columns by a coagulable exudate in which there are polymorphonuclear leukocytes. There is an enormous collection of mononuclear cells in the walls of the portal branches.

Histologic Condition of Liver in Chronic Appendicitis Cases

Case	Sex*	Age	Appendix	Liver	Pathologic Diagnosis
1	♂	17	Considerable inflammation; atrophy of mucosa	Irregular intermingling of fibrous tissue with columns of liver cells; fibrous tissue infiltration with round cells	Chronic appendicitis; slight interstitial hepatitis
2	♀	24	Large areas of inflammation; atrophy; excess round cells in serosa	Fibrous tissue dense and hyaline; moderate excess of round cells	Chronic appendicitis; moderate biliary cirrhosis
3	♂	25	Areas of atrophy in mucosa with extravasation; submucosa composed of dense connective tissue	Marked round cell infiltration of periportal field; trabeculae increased in thickness	Chronic appendicitis; marked round cell infiltration, periportal fields of liver; interstitial hepatitis
4	♂	26	Wall edematous, infiltrated with round cells and polymorphonuclear leukocytes	Moderate increase in trabeculae; numerous round and wandering cells about bile ducts	Subacute appendicitis; early biliary cirrhosis of liver
5	♂	38	Areas of round cell infiltration with brown granular pigment; longitudinal layer and serosa infiltrated with round cells	Periportal fields with lymphocytic infiltration; liver cells show granular pigmentation	Chronic appendicitis, with partial obliteration; round cell infiltration periportal fields of liver; interstitial hepatitis
6	♂	46	Extensive destruction of mucous membrane; marked edema and leukocytic infiltration	Trabeculae markedly increased; rich infiltration with round cells and leukocytes more marked about portal veins	Chronic appendicitis with acute gangrenous exacerbation; subacute interstitial hepatitis, apparently of portal origin

* In this column, ♂ indicates male; ♀, female.

15. Heyd, C. G.: The Liver and Its Relation to Chronic Abdominal Infection, Ann. Surg. **79**: 55 (Jan.) 1924. Heyd, C. G.; MacNeal, W. J., and Killian, J. A.: Am. J. Obst. & Gynec. **7**: 4 (April) 1924. Heyd, C. G., and MacNeal, W. J.: Beaumont Lecture, Detroit, 1924.
16. Heyd, C. G.: Tr. Am. Gastro-Enterol. Assn., 1924.
17. Jameson, J. K., and Dobson, J. F.: Lancet, April 27, 1907.
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19. Franke: Deutsch. Ztschr. f. Chir., September, 1911.
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fibrous tissue of the trabeculae of Glisson's capsule. It follows that the estimation of the degree of periportal fibrosis or peribiliary fibrosis might be used as an index of the degree of injury to the hepatic tissue.

During our study of the liver in relation to chronic abdominal infection, we occasionally removed a section of the right and left lobes of the liver in cases of undoubted chronic appendical infection. We found, on histologic examination of the stained liver sections, a uniform tendency toward the production of varying degrees of interstitial fibrosis. This fibrous tissue hyperplasia and replacement was preponderantly disposed in one group of cases about the periportal fields, and in the other group of cases about the biliary fields. Clinically, the chronicity of the process in the appendix and apparently the degree of infectivity and virulence were essential factors in the hepatic response. In the

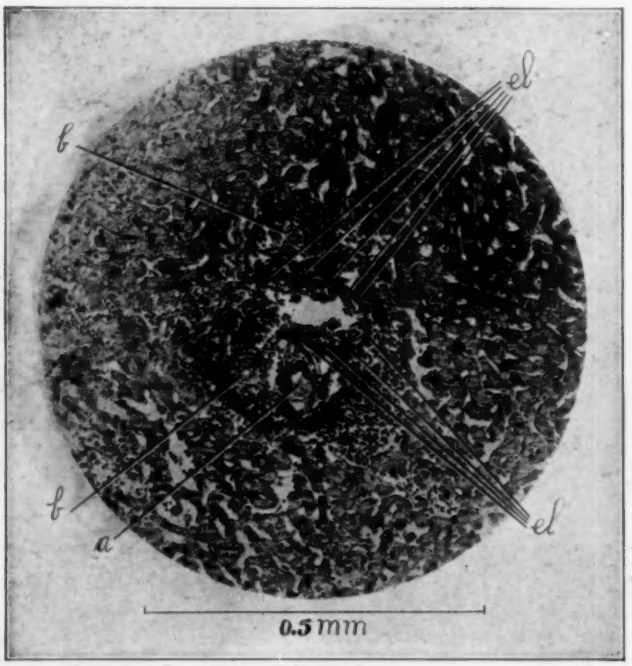

Fig. 5 (Case 6).—Section stained with resorcin-fuchsin and carmin: *a*, branch of hepatic artery; *b*, bile duct; *el*, subendothelial elastic layer in the wall of portal vein. In the microscopic preparation of this, a layer of somewhat frayed elastic fibers was sharply differentiated in dark blue in contrast to the adjacent cells stained rose color by the carmin. In the photomicrograph, the red appears as dark as the blue. There is a thick layer of cells, chiefly endothelial cells, internal to this elastic layer.

mildest type, the liver changes were represented in the irregular intermingling of fibrous tissue with the columns of liver cells, together with an infiltration in the newly formed connective tissue. In cases of greater chronicity, as in Case 2, the fibrous tissue was more dense and hyaline, and the infiltration of round cells more marked, with a tendency toward allocation around the biliary radicles (Fig. 1). In Case 3, with a greater degree of pathologic change in the appendix, the trabeculae of Glisson's capsule were increased and the round cell infiltration more marked, and in this type the allocation of the round cell infiltration was more marked about the periportal fields (Fig. 2). If there was an acute exacerbation in the appendix, the round cell infiltration in the liver varied and was merged with a polymorphonuclear leukocytic invasion, with a diffusion of leukocytes, lymphocytes and endothelial cells between flattened and distorted liver cells. Occasionally, the cytoplasm showed vacuoles, the nucleus, chromatolysis with free pigment granules, and more rarely an increase in the syncytial cells of Kupffer, as in Case 4 (Fig 3). In other types, as in Case 6 in which the appendix histologically showed healed lesions of a chronic type, the periportal connective tissue was edematous and richly infiltrated with polymorphonuclear leukocytes, eosinophilic leukocytes and especially abundant mononuclear endothelial cells, the latter with mitotic figures (Fig. 4). The endothelium of the sinusoids was swollen and in many places separated from the liver columns by a coagulable exudate in which there were polymorphonuclear leukocytes. Sections of the same specimen stained with resorcin, fuchsin and carmin (Fig. 5) showed the bile ducts with sharply defined lumen obviously less involved than the portal branches in the inflammatory reaction. The elastic tissue fibers of the veins were sharply differentiated and showed a thick layer of cells—chiefly the endothelial cells internal to the intima.

116 East Fifty-Third Street.

ABSTRACT OF DISCUSSION

DR. C. A. ELLIOTT, Chicago: This paper brings to our attention, in a striking way, the relationship of infection to pathology of the various abdominal organs. As clinicians, we are prone to base a diagnosis on a single pathologic state, overlooking the fact that frequently it is only a part of a more extensive abnormal condition. The author has shown very clearly how such pathologic conditions may be related. The important question of involvement of the liver secondary to infection elsewhere in the abdomen, notably in the appendix and gallbladder, is attracting considerable attention. Our interest in the matter was stimulated by the reports of Dr. Evarts A. Graham of infections of the gallbladder associated with hepatitis. We have been surprised to observe at operation and at necropsy how frequently evidence of extensive liver changes has been present in cases of chronic inflammation of the gallbladder and appendix. I venture to say that we are not at present in a position to estimate accurately the amount of liver damage that has resulted in a specific case from continued infection elsewhere in the abdomen. The tremendous power of regeneration and adaptation possessed by the liver and the fact that the amount of pathologic change does not parallel functional ability must be considered. Although impaired function may follow the accident of structural damage, extensive degeneration, round cell infiltration, or connective tissue deposit along the bile capillaries or around the vessels may be present without apparent impairment of liver function.

DR. JOHN A. LICHTY, Clifton Springs, N. Y.: Dr. Heyd has given us abundant evidence of certain changes in the liver in the cases he reported. In reviewing the paper, I was impressed with a question which I believe is pertinent, and that is this: What, after all, is the proof produced that these changes in the liver are secondary to disease of the appendix, or even to disease elsewhere? Other organs, especially the pelvic organs, have the same relation to the liver, so far as the lymphatic system is concerned. May not a general subinfection, such as Adami described years ago, be shown just as easily as being responsible, under favorable conditions, for the lesion in both the chronic appendix and the liver? Much experimental work is necessary to prove the position Dr. Heyd has taken. However, accepting his thesis, which is certainly most attractive, it gives the most plausible reason possibly for the high percentage of failures in obtaining satisfactory results in the operation for so-called chronic appendicitis. It has long been know that a case of chronic appendicitis needs other care besides the removal of the appendix and the breaking up of adhesions before the desired results can be realized. In 517 consecutive cases of my own, compiled from a general and consulting practice, in which the patients had already been operated on for various conditions, and in whom the complaint after the operation was

the same as before the operation, 243 had been operated on for chronic appendicitis. It is possible that these cases had developed such changes in the liver as Dr. Heyd has here demonstrated. Removal of the appendix will not restore liver function. Compared with the results of operation for acute appendicitis, that for chronic appendicitis is a great disappointment, and probably Dr. Heyd has shown why, at least in some cases, this is true.

DR. CHARLES G. HEYD, New York: In regard to proof as to whether these changes in the liver are secondary to appendicitis, we have none. However, none of the patients were women; therefore the chief etiologic factor, the pelvic organs, was eliminated. We only know that in a case which showed a chronic appendicitis we found these liver changes at operation. I believe this whole problem is one of subinfection. We find these conditions so often in the cases of indubitably diseased appendix that we must feel that the liver, interposed between the lymph circulation and the portal circulation is the organ that receives the injury, and the formation of fibrous tissue is Nature's method of repairing an injury.

IMPORTANCE OF CAREFUL ROENTGEN-RAY INVESTIGATIONS OF APICAL CHEST TUMORS *

HENRY K. PANCOAST, M.D.
PHILADELPHIA

There is an unusual but apparently infrequent type of intrathoracic growth occurring in the apical region, yet found with sufficient frequency in my experience to warrant a collective report of the cases encountered. The neoplastic condition is unusual for the reason that it produces referred nerve phenomena in the upper extremity which may be very misleading to the clinician

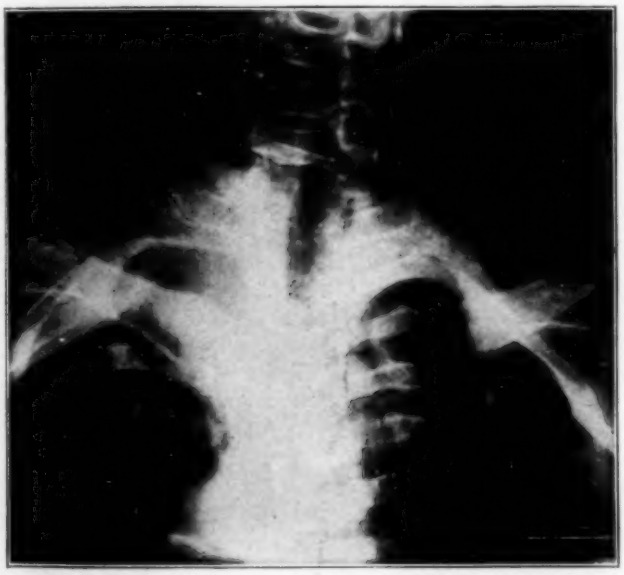

Fig. 1 (Case 1).—Special examination of patient, showing shadow of growth in extreme left apex and destruction of posterior portions of left second and third ribs and adjacent transverse processes.

and roentgenologist in their search for the cause; and when to these manifestations are added certain cervical sympathetic phenomena, the symptomatology of spinal cord tumor is closely simulated, especially in the absence of any apparent extraspinal etiologic factor. I have been fortunate enough to learn the exact nature of these growths from careful pathologic studies in two cases, and in all four cases there has been a most satisfactory correlation of clinical and roentgenologic data.

In three of the four cases, an early diagnosis of the condition present was missed because of incomplete roentgenologic study or faulty interpretation of the roentgenograms, and in the fourth case no attention was

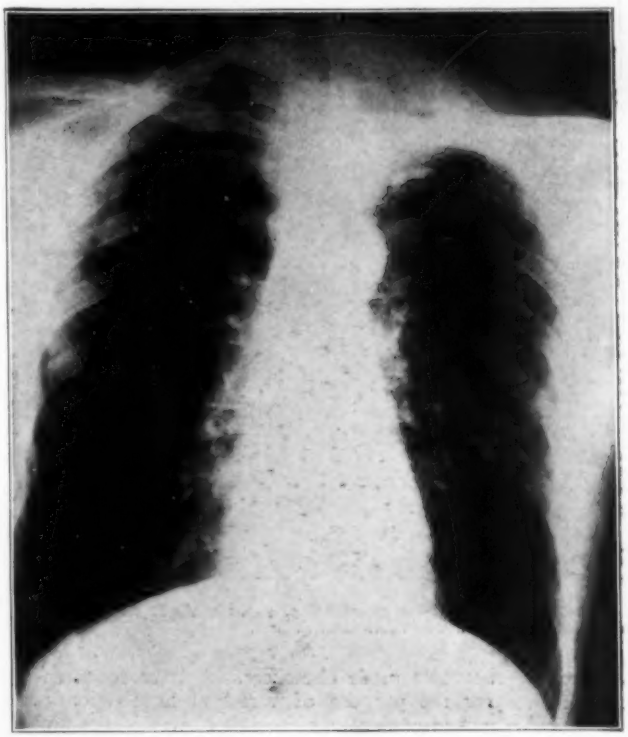

Fig. 2 (Case 1).—Chest examination seven weeks later, showing no apparent extension of growth.

paid to roentgenologic suspicions of the lesion present. In all four cases the roentgen-ray diagnosis was finally established.

In searching the literature on cervical sympathetic paralysis for reports of cases of the kind herein reported, I have been able to find but one,[1] and that is included in my series as having been examined by me. Cobb and Scarlett,[2] in 1920, in a report of eleven cases of cervical sympathetic nerve injury, reviewed the literature on paralysis of these nerves from various causes. I am indebted to Dr. Hunter W. Scarlett for additional references to articles by Ferry,[3] Spiller,[4] Lafon,[5] Potts and Spiller,[6] Ellett,[7] Butler,[8] Sym,[9] Hutchinson,[10] Mayou [11] and de Schweinitz.[12]

* Read before the meeting on radiology in the Section on Miscellaneous Topics at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

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REPORT OF CASES

Case 1.—The first case to come to my attention was subjected to what proved to be an unnecessary operation for supposed spinal cord tumor because of lack of familiarity with the type of growth and an error in interpretation of

Fig. 3 (Case 2).—Chest examination, showing slight clouding of left extreme apex, which was overlooked at first.

some roentgenograms made elsewhere. A later roentgen-ray examination for the purpose of vertebral localization prior to a possible second exploratory operation revealed the growth and cause of the symptoms within the thoracic cavity and directed the second operation to the correct field. This case has been previously reported by Freeman[1] mainly from the standpoint of symptomatology and not roentgenologically.

History.—A man, aged 52, was admitted to the University Hospital early in September, 1921, in the services of Drs. Spiller and Frazier. His chief complaint was intense burning pain, high in the left axilla and extending down the arm, worse at night and keeping him awake. It was then of eleven months' duration, at first intermittent and later continuous; limited to the shoulder girdle at first, but later referred down the arm to the elbow, and for the last two months to the wrist, during which time there was an associated muscular twitching, increasing weakness of the grip, and muscular wasting of the hand. On admission, there was noted a contracted left pupil, enophthalmos and narrowing of the palpebral fissure. The blood and spinal fluid Wassermann reactions were negative.

Treatment and Course.—The patient brought with him some roentgenographic films of the spine, which were said to have been regarded as negative, and in this we concurred. It is important to note, however, that the films were very dense. In the absence of any evidence of tumor in the neck and chest, with negative roentgenologic evidence of a vertebral lesion and because of the similarity of the symptoms in many respects to those of spinal cord or meningeal tumor, laminectomy was performed September 16, although the possibility of an undetected extravertebral lesion was recognized. No tumor was found.

Roentgen-ray examination was made five days later to determine from which vertebrae the lamina had been removed, and we then discovered a shadow in the extreme left apex and destruction of the posterior portions of the left second and third ribs and adjacent corresponding transverse processes (Fig. 1). Roentgenologically, the condition was regarded as sarcoma. On reexamination of the previous films brought by the patient, we were able to make out the rib destruction; but the density of the films made this difficult to detect, and the increased apical density was almost blotted out.

As a result of these roentgenologic findings, the patient was again operated on, October 16, by posterior incision over the growth, and the tumor mass was found and a section removed for biopsy. A 50 mg. radium tube was implanted in the growth and seven needles (75 mg.) around the periphery for nineteen hours (2,375 mg. hours). Two series of roentgen-ray treatments were subsequently given. A subsequent examination, December 2 (Fig. 2), showed no apparent extension of the process, but the patient grew steadily worse and could not return for further treatment.

Pathologic Report.—The first report submitted was "endothelial carcinoma" of the pleura. In discussing the matter, Dr. A. J. Smith stated that he did not consider this a proper term. He considered the lesion a straight endothelioma, of which there are three types: (1) the massive type, which is characteristic endothelioma; (2) the diffuse infiltrating type, of which this was an example, which on section shows some of the characteristics of scirrhous carcinoma, in which one frequently looks for a primary carcinomatous focus, and which is occasionally confusing, and (3) the papillomatous type, which is distinctly endotheliomatous.

Case 2.—*History.*—H. N., a man, aged 36, admitted to the University Hospital, Jan. 22, 1922, in the service of Drs. Stengel and Kern, complained of a dull aching pain around the left shoulder of four months' duration, confined chiefly along the inner border of the scapula, upper lateral aspect of the chest and inner side of the arm. It was not constant, but always present at night, and made worse by deep breathing or straining, but not exaggerated by coughing or movements of the arm. There was no dyspnea, bloody sputum or loss of weight.

Examination.—There was drooping of the left shoulder. The chest expansion was diminished, the breath sounds were prolonged, expiration was higher pitched over the left apex, and there were a few leathery frictions over the left scapular region. The thyroid was somewhat enlarged, and there was

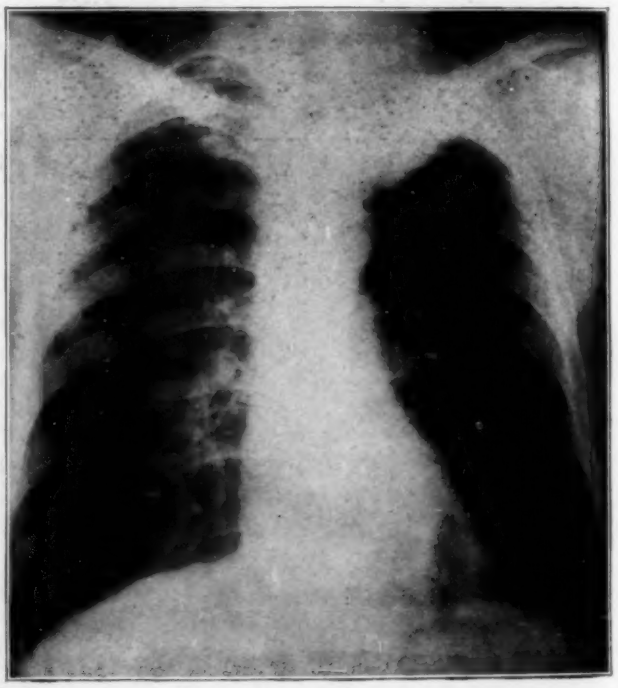

Fig. 4 (Case 2).—Later examination, showing very definite growth in the left apex.

adenopathy in the left axilla but none in the neck. The pupils were unequal, the right being larger and the left smaller than normal and not dilatable by 4 per cent. cocain, and the left lid was ptosed. The blood and spinal fluid Wassermann reactions were negative. A tentative diagnosis

of spinal cord tumor was made, although the neurologic study was not conclusive in this diagnosis, as there was no atrophy of the hand, no changes in reflexes or sensations, and no cord pressure phenomena.

Roentgenologic study, made January 24, for substernal thyroid or chest tumor, was negative. We should have noticed, however, but failed to do so, that the left extreme apex was distinctly clouded (Fig. 3).

Various additional diagnoses were advanced later, such as sarcoma in the region of the seventh cervical or first thoracic vertebra, pressure by an enlarged thyroid, and the effect of carrying heavy weights on the shoulder. A roentgenogram of the shoulder, February 10, was negative, and the patient was discharged from the hospital. He was readmitted, March 28, because of more constant and worse pain, stabbing in character. He had lost 17 pounds (7.7 kg.). Examination showed more marked sympathetic paralysis with unilateral sweating, paresthesia in the first thoracic root distribution, but no muscular atrophy. The case was now recognized

Fig. 5 (Case 3).—Early examination of right shoulder, showing slight apical shadow which was overlooked.

clinically by Dr. Spiller as being similar to the one just described.

The third roentgen-ray examination made of the spine, March 30, showed an abnormal appearance in the region of the left first and second ribs, with rarefaction of the transverse process of the second thoracic vertebra and neck of the rib. A further study of the chest was reported as indicating a growth of the left apical region between the ribs and vertebrae and extending down to the fourth rib posterior (Fig. 4). The details were much better than in the spinal films.

Treatment and Course.—On the basis of these findings, operation was performed, April 11. The posterior portions of the left first and second ribs and corresponding transverse processes were removed, and a growth exposed about 3 inches (75 mm.) long, extending around the posterior aspect of the thoracic cavity and lying between the transverse processes. It was thought to be endothelioma of the pleura. Radium needles (75 mg.) were implanted and a section removed for biopsy.

The report on sections was "metastatic carcinoma," but in view of the statements made under the pathologic report of Case 1 and the absence of any primary carcinomatous growth, we are inclined to believe that this growth also was the diffuse infiltrating type of endothelioma of the pleura.

The patient was subsequently treated by cross fire roentgen-ray irradiation, three series, up to June 24, with no improve-

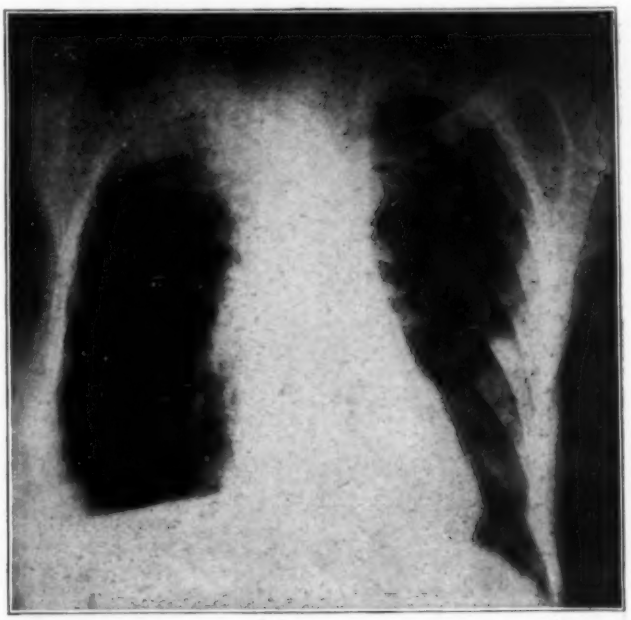

Fig. 6 (Case 3).—Later examination, showing well defined tumor shadow.

ment. Another examination, made July 13, showed an extension and considerable erosion of the sides of the bodies of the first, second and third thoracic vertebrae. A cordotomy

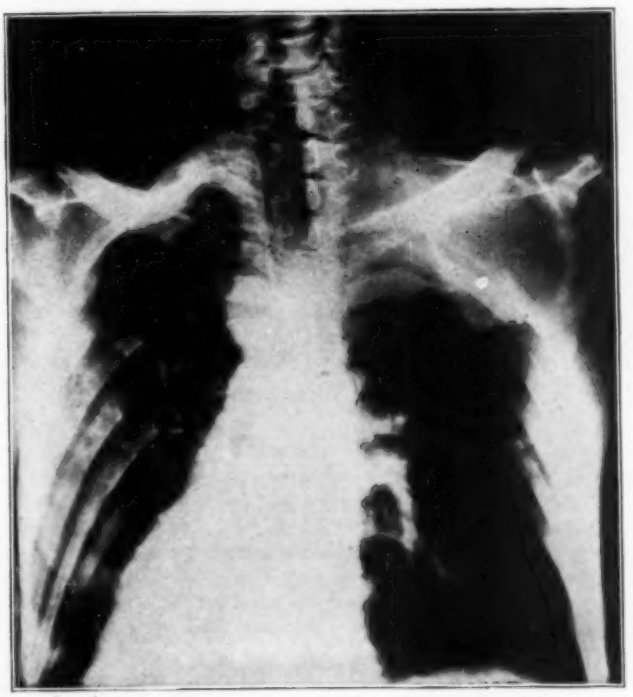

Fig. 7 (Case 3).—Spine examination, showing rib destruction by growth.

was performed, July 15, for relief of pain, by Dr. Grant. The patient was discharged, Aug. 13, 1922, and subsequently died.

CASE 3.—*History.*—W. S., a man, aged 60, referred to us in consultation, Dec. 22, 1923, by Dr. Kopeika and Dr. Riesman, began to complain of pain around the right shoulder,

which was thought to be neuralgia because of his occupation, ice cream worker. Salicylates gave no relief. A roentgenogram of the shoulder for bursitis, especially, was negative, and the condition was regarded as a brachial neuritis. There should have been noted on the film of the shoulder a small, diffuse shadow in the right apical region (Fig. 5). Two

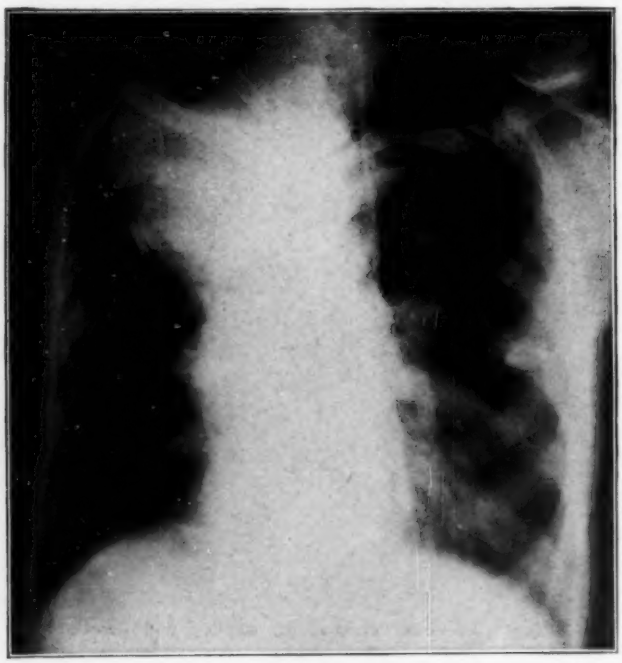

Fig. 8 (Case 4).—Chest examination, showing primary carcinoma of the left upper lobe.

weeks later, a consultant diagnosed bursitis. Blisters, diathermy and other applications gave no relief. By September 1, the patient could not use his arm, and the pain was then distributed more or less around the entire shoulder girdle and radiated down the arm to the wrist, but not below. Morphin now failed to relieve it. Dr. Riesman then saw him and regraded the condition as brachial neuritis. Two weeks later there was noticed contraction of the right pupil and ptosis of the lid. He was seen by Dr. McCrea in November, and a roentgen-ray examination by Dr. Manges showed a tumor in the right apical region causing a diffuse shadow within the chest and destruction of the posterior portion of the right first rib up to its articulation with the transverse process and of the lateral portion of the second rib. Dr. Manges regarded the lesion as sarcoma, and gave deep roentgen-ray therapy. The patient was seen again by Dr. Riesman in December, and examined by us in consultation, December 22. Our findings confirmed those of Dr. Manges (Figs. 6 and 7) except that the growth had become more extensive and the ribs were still more eroded. We recommended that treatment be continued by Dr. Manges, but the patient was unable to return, and died in January, 1924. No necropsy was made. Although a diagnosis of sarcoma was made in this case, and entirely with justification, we felt that because the symptoms and roentgen-ray appearances closely resembled those in the two previous patients, the growth was just as likely to have been a diffuse infiltrating endothelioma of the pleura.

CASE 4.—This case, while differing from the other three in the exact nature of the growth and involvement of tissues, has certain points of similarity in location, early misleading symptoms and early roentgen-ray appearances, and again demonstrates the wisdom of broadening our field of search in cases in which there are obscure shoulder pains.

History.—B. S., a man, aged 61, was referred to me in April, 1920, for examination for possible cervical rib, cervical and upper thoracic spine and teeth, because of pain in the left shoulder. The spine showed slight hypertrophic spondylitis in the lower cervical region. There was no cervical rib, but I called attention, incidentally, to a circumscribed area of increased density in the right apical region. Evidently this portion of my report was not taken seriously.

The patient was admitted ten months later, April 17, 1921, to the University Hospital, in the service of Dr. Stengel. I then obtained the history that he had complained of pain around the left shoulder for eighteen months, mostly in the suprascapular and scapular areas, and unrelieved by treatment. He had a cough and whitish expectoration for a few months, and had lost 30 pounds (13.6 kg.). Physical examination showed marked impairment in the left apex and almost inaudible breath sounds. There were no ocular manifestations.

A second roentgen-ray examination, February 18, showed a circumscribed lesion in the left upper lobe extending down to the second interspace, anterior level. Without realizing that I had previously examined the patient, I returned a report of probable primary sarcoma or carcinoma of the lung, with the possibility of a localized collection of fluid, however (Fig. 8). In view of leukocytosis of 35,000, thoracentesis was tried repeatedly, but only sterile bloody fluid was obtained. As the pain was growing worse and extending down the arm, operation was advised. Dr. Muller performed a rib resection, March 23, and exposed the growth and removed a section for biopsy. Radium, 110 mg. in tubes, was inserted for eighteen hours (1,980 mg. hours). Subsequent examination showed metastasis in both lungs. Further irradiation did no good, and the patient died. The pathologic report was primary carcinoma of the lung.

I do not wish to imply that diffuse infiltrating endothelioma of the pleura is the only growth in the apical region that will produce the same symptom complex, including cervical sympathetic paralysis, as in the first three cases reported. The following case may serve to prove that such a contention is not correct:

CASE 5.—This was a case of proved spindle cell sarcoma causing destruction of the third and fourth ribs posterior, but well away from the apical region (Fig. 9). The growth showed externally on the patient. He complained, when examined, of pain over the scapular region radiating around the shoulder and down the arm. Had this tumor been located in the apical region, it would probably have produced the same symptom complex as in the first three cases.

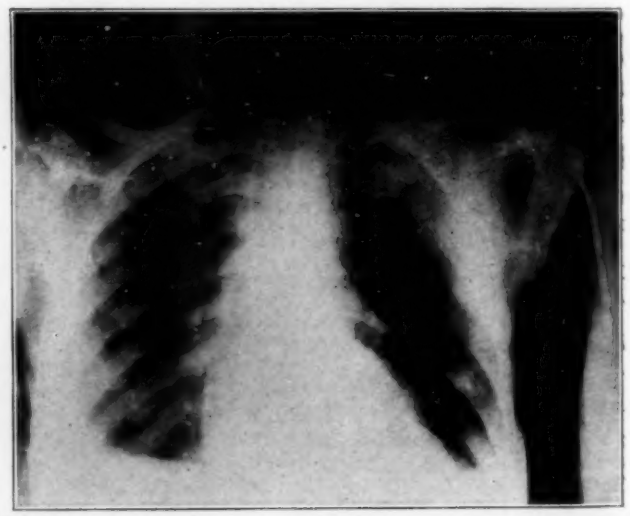

Fig. 9 (Case 5).—Spindle cell sarcoma causing rib destruction, but away from the apical region and spine.

It is well known that many conditions will produce the symptom complex of pain and cervical sympathetic paralysis already referred to. Among these may be mentioned spinal cord or meningeal tumors, tumors of the vertebrae, some tumors of the neck, cervical rib and trauma. Cervical sympathetic paralysis can also be due

to many conditions, such as neck tumors and enlarged glands, trauma, aneurysm, noninfiltrating mediastinal tumors and pulmonary tuberculosis. The appearances due to sympathetic paralysis are well illustrated in a case of lymphosarcoma of the neck with the larger mass on the left side (Fig. 10). The patient has pain referred down the left arm and in the third, fourth and fifth fingers, and loss of tactile and pain sensations on the inner side of the right forearm; wrist extension is

Fig. 10.—A case of lymphosarcoma of the neck, exhibiting evidences of cervical sympathetic paralysis — contracted pupil, ptosis of the lid, enophthalmos, and slight hemiatrophy of the face.

weak, and there is no grip in the hand. There is very noticeable ptosis of the left lid, contracted pupil and a suggestion of hemiatrophy of the face. Sweating occurs only on the right or opposite side of the face.

CONCLUSIONS

1. An infiltrating growth, either endothelioma of the pleura or sarcoma, probably of bony origin, may occur in the apex of the thoracic cavity and produce a symptom complex of pain in the upper extremity and cervical sympathetic paralysis closely simulating that of many other conditions, such as spinal cord or meningeal tumors, neck tumors, cervical rib and vertebral neoplasms.

2. Roentgen-ray examinations of the shoulder alone before the appearance of eye manifestations may fail to reveal such a growth, and a wider area should be included in obscure cases.

3. In roentgen-ray examinations of the spine and for cervical rib, the roentgenograms should be carefully studied for any increased density in the apex of the lung or for erosion of the upper ribs or adjacent vertebrae.

University Hospital.

ABSTRACT OF DISCUSSION

DR. WILLIAM A. EVANS, Detroit: Dr. Pancoast's experience with this type of tumor is apparently unique. I have seen no cases which could be so classified, and I have been unable, as Dr. Pancoast has stated, to find any cases recorded in the literature. I feel convinced that it is not possible to make a positive diagnosis in tumors of the upper thorax without microscopic aid, and, further, that any type of growth in this part of the thorax will produce symptoms similar to those described by Dr. Pancoast in his cases. I reviewed cases of the same type in our series and found that in each of five cases so classified there was a different type of tumor. The first case was one of recurrent carcinoma secondary to carcinoma of the breast, which had been removed eight years previously. The patient was sent to the office with a tentative diagnosis of cervical rib, but the plates revealed tumor masses in the upper part of the chest. Our second case was diagnosed at postmortem examination as a sarcoma originating from the remnants of the thymus gland. A third case was one of carcinoma originating in the apex of the left lung, while a fourth case was a primary sarcoma in the right apex. A fifth case, which was classified as a tumor, proved at operation to be a sarcoma underneath the scapula. In these cases the symptoms were essentially those of cervical rib. Dr. Pancoast's paper emphasizes the necessity of careful study of the thorax in all cases in which there is pain referred to the shoulder or to the arm. As stated above, I do not think it possible to differentiate these tumors by clinical or roentgenologic findings alone.

DR. LEON T. LEWALD, New York: Was there manifest in these cases any evidence of recurrent laryngeal paralysis? We have three cases in which recurrent laryngeal symptoms were due to chest lesions, one a case of chest tumor and two cases of contraction of fibroid tuberculous lesions involving the apex of the lung in such a way as to be accountable for the recurrent laryngeal symptoms. At least, there was no other explanation for the condition, after the cases were observed for some time.

DR. HENRY K. PANCOAST, Philadelphia: It seems strange that there are no cases of this kind on record, and yet I have seen three of them in less than three years. Replying to Dr. LeWald: We found no evidence of laryngeal paralysis in any of these cases. I think it is possible that it might occur. It is well known that it does occur in mediastinal tumors, and sympathetic paralysis occurs within mediastinal tumors. One must be able to distinguish between a tuberculous lesion in the apex and one of these tumors.

SPONTANEOUS RUPTURE OF THE KIDNEY

REPORT OF CASE *

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NEW YORK

Spontaneous, or nontraumatic, rupture of the kidneys is very rare, only twenty-four instances [1] having been found in a careful search of the literature, with two of these probably caused by indirect trauma. Rupture of the kidney without hemorrhage is even more rare. A case presenting signs of urinary extravasation could not be found.

Herzog [2] found sixteen cases of spontaneous rupture, and one open injury to the kidney in 7,805 necropsies. Speese,[1] in 1913, collected reports of twenty-one cases of spontaneous rupture of the kidney with perirenal hematoma, to which Wade,[1] Thomas [1] and Connell [1] have each added a case. The case here reported makes a total of twenty-five. Other authors [3] have collected reports of a few more cases, but the spontaneity in some is doubtful. The causes were tuberculosis, abscess, tumor, necrosis of the suprarenal, traumatism and hemophilia, with chronic nephritis always present. Abetti [4] adds hydronephrosis, infarct, renal arteriosclerosis, and periarteritis nodosa, as possible causes. Hydronephrosis and pyonephrosis secondary to ureteral obstruction should be included in this list. Indirect injury, such as a fall on the feet or buttock, or even by muscular action while closing a window may be the

* Read before the New York Academy of Medicine, Section of Genito-Urinary Surgery, May 21, 1924.

1. Connell, F. G.: Simple Subparietal Rupture of the Kidney, Surg., Gynec. & Obst. **22**: 663 (June) 1916. Speese: Perirenal Hematoma, ibid. **16**: 571, 1913. Thomas, G. J.: Spontaneous Rupture of the Left Kidney, Journal-Lancet **37**: 84 (Feb. 1) 1917. Wade, H. W.: Spontaneous Rupture of the Kidneys, with Secondary Perirenal Hemorrhage, in Acute Toxic Nephritis, J. M. Res. **32**: 419-431, 1915.

2. Herzog: Ueber Nierenverletzungen, München. med. Wchnschr. **37**: 198-219, 1890.

3. Wade (Footnote 1).

4. Abetti: Riforma med. **28**: 1412, 1912.

cause of rupture in a pathologic kidney. Küster [5] thinks that rupture of the kidney by muscular action is due to the hydraulic pressure within the kidney. Another view is that the kidney is thrown against the transverse process of the vertebrae and ruptured. Von Bergman [6] believes that the forces applied press the ribs into the distended kidney. Wade [1] reports a case of bilateral rupture of the kidneys with acute nephritis following mercury administration. Twenty of these reported were in males and five in females. The average age for the males was 32, and for the females 39, the youngest being 18 and the oldest 65.

The three cardinal symptoms are (1) sudden, severe pain in the kidney region; (2) indications of internal hemorrhage, and (3) development of retroperitoneal tumor. The pain, sometimes followed by nausea and

Fig. 1.—Ruptured kidney, with impacted calculus above stricture of ureter; three small stones at point of rupture in upper calix.

vomiting, may radiate to the back, hip, shoulder and sacral or lumbar region. Tenderness may be local or diffuse, and is caused by pressure on the kidney capsule, which is rich in nerve supply. Muscular rigidity is practically constant. The hemorrhage may be accompanied by shock and pallor, and secondary anemia may develop. In five of these cases, the hemorrhage was between the capsule and the kidney, while in ten cases the capsule was reported ruptured. In the remaining cases the capsule was reported intact, but it was the seat of chronic inflammatory changes.

The temperature usually becomes subnormal immediately, as a result of shock, and then, according to Doll,[7] shows a characteristic elevation due to the absorption of fibrin ferment. Meteorism and jaundice have occurred. The urine was normal in four cases, and contained blood in nine cases. All the others showed some form of chronic nephritis. In all the cases in which the cystoscope had been used, functional insufficiency of the affected kidney was noted.

The course is usually rapid, death resulting from anemia, infection of the clot, pulmonary complications, or uremia due to the chronic nephritis. Three cases pursued a more chronic course and lasted for months or years.

Surgery, either radical or conservative, is the only hope. Of these patients, twelve were cured and seven died with surgical intervention. One died before operation was begun, and all five died who were treated nonsurgically. If the capsule is intact and there is no infection, drainage seems sufficient. But if the capsule is torn and the kidney substance diseased, it is questionable whether conservative surgery will suffice. This 50 per cent. mortality should be lowered with early diagnosis and early surgery.

REPORT OF CASE

History.—H. B., a man, aged 42, was sent to the Brady Urological Department of the New York Hospital in an ambulance by Dr. George M. Ball. He presented a swelling and discoloration of the entire scrotum extending to the perineum, around the penis and up over the abdomen. He complained of general malaise and appeared acutely ill. Careful questioning revealed some discomfort over the right side of the abdomen and chest.

The patient had a chancre fourteen years before, which lasted about six weeks. He was treated three years for syphilis. He said that he had not had gonorrhea, but stated that he had been treated at intervals for urethral stricture. He had some difficulty in voiding urine, and for the past five weeks had been catheterizing himself four times daily. He had had no other treatment for the past two months. Seven years before, he had a right renal colic, which lasted two days. After morphin was administered, he passed a stone in the urine. He had no further difficulty until four years before admission, when a similar renal colic resulted in the passing of another stone.

The patient had felt perfectly well until two weeks previous to admission. He was walking down a street in Philadelphia when he began to feel tired and somewhat feverish, as if he were developing the grip. He went to his hotel, took a hot bath and some acetylsalicylic acid, and went to bed. On arising the next morning he had some difficulty in emptying the bladder completely, and had a dull ache in the right side. He catheterized himself and obtained very little urine. He worked part of the day visiting customers, but felt much worse at night. He came to New York the next day and remained in bed, gradually becoming worse. About two days before admission, the scrotum began to swell and became discolored, but was not tender. This swelling gradually became more extensive until the perineum, part of the penis, and most of the lower part of the abdomen were involved. He had been catheterizing himself during this period, and he stated that the urine was dark colored but never red or cloudy. The dull pain on the right side persisted, but he mentioned this only on careful questioning.

Examination.—The patient was slightly built. The head appeared normal to external examination. The pupils were regular and equal, and reacted to light and in accommodation. The nose was not obstructed. The lips were dry and parched; the tongue was dry, the throat normal. There was no adenopathy of the neck, and no tumor masses or pulsations. There was slight edema on the right side of the back, extending upward to the angle of the scapula. Expansion was equal; breathing was regular. The left lung was normal throughout. There was an area of dulness over the right lower part of the chest, extending below the third interspace in front and the angle of the scapula posteriorly, which shifted as the patient was moved. Vocal fremitus and tactile fremitus were decreased over this area. There was an area of bronchial breathing above this. The heart was enlarged outward

5. Küster, E. G. F.: Die chirurgischen Krankheiten der Nieren, Stuttgart, Enke, 1896-1902.
6. Von Bergmann, E.; von Bruns, P., and von Mikulicz, J.: System of Practical Surgery, Philadelphia, Lea & Febiger 5: 230, 1904.
7. Doll, cited by Speese (Footnote 1).

and downward. The apex was in the fifth interspace and the mammary line. The tones were of good quality and regular, with no murmurs; the rate was 124. The blood pressure was: systolic, 118; diastolic, 70. The abdomen was flat, with a purplish edema covering the lower third, extending higher on the right side than on the left. There was very slight edema over the right side of the back. A definite rigidity was present over the entire right side of the abdomen which prevented deep palpation, but did not appear extremely tender. There were no masses or tenderness of the left side. The abdominal edema was continuous with the edema surrounding most of the penis, the entire scrotum and the anterior portion of the perineum. There was no demonstrable hernia. The scrotum was enlarged to about five times the usual size, and was edematous but not tender. The testes, epididymides and vasa deferentia were not palpable. Rectal examination revealed a few hemorrhoidal tags; the sphincter was tight, the prostate normal in size and consistency. Both seminal vesicles were slightly swollen, not tender, and stripped without difficulty. The extremities showed no deformity or edema. The reflexes were active and equal. A No. 22 French soft rubber catheter passed to the bladder without difficulty, releasing 4 ounces (120 c.c.) of very dark yellow, clear urine. Urinalysis revealed clear, amber urine with a specific gravity of 1.026, alkaline, containing no albumin, no sugar but many leukocytes. The blood urea nitrogen was 25.3 mg. per hundred cubic centimeters of blood. The Wassermann reaction was negative. Roentgenograms of the chest showed fluid in the right side. Abdominal roentgenograms were negative (the patient was not properly prepared). Owing to the patient's critical condition, cystoscopy was not done. A diagnosis of extravasation of urine without urethral obstruction was made.

Treatment and Course.—A perineal section was done under gas-oxygen anesthesia in the usual manner, and a rubber drainage tube was inserted into the bladder. Multiple incisions were made into the scrotum, perineum and penis, and over the suprapubic region, releasing a very foul smelling fluid. Each incision was connected subcutaneously by means of small rubber drainage tubes. The systolic blood pressure dropped to 92, but his general condition was about the same. He

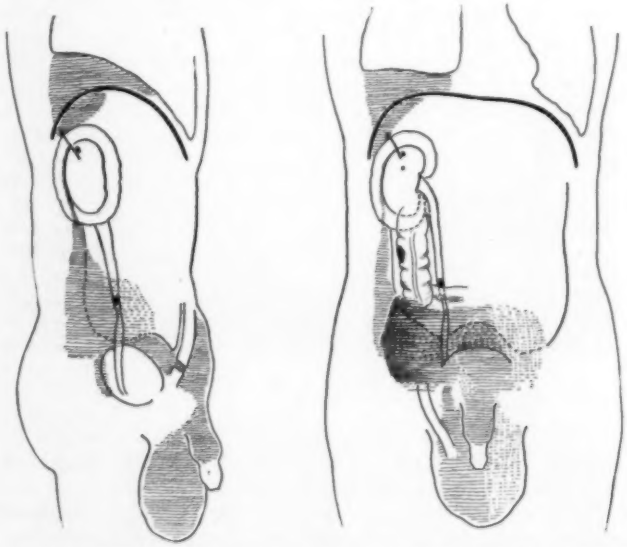

Fig. 2.—Extent of urine extravasation and infection from the point of rupture upward under the diaphragm and in the pleural cavity; also downward between the fatty and fibrous capsule to the perinephritic abscess, over and above the bladder, point of rupture through the muscle layers to the subcutaneous tissue under the skin in the scrotum around the penis and in the suprapubic region.

took fluids well by mouth and drained from 44 to 72 ounces (1,300 to 2,130 c.c.) daily. The wounds were irrigated with hydrogen peroxid, and hot yeast dressings were applied. The edema on the right side of the back was more pronounced the following day. Digitalis and caffein were administered without apparent effect. The temperature was practically normal until the fourth day after operation, when it gradually went up, finally reaching 104.6 F. before his death. Blood culture on the day of death was sterile. He developed hiccups the second day after operation, which continued until his death three days later.

Necropsy.—A limited necropsy was obtained. The body was 164 cm. in length. The diaphragm reached to the level of the third rib on the right and fourth rib on the left side. The peritoneal cavity contained no free fluid. There was a marked puffiness and discoloration in both inguinal regions,

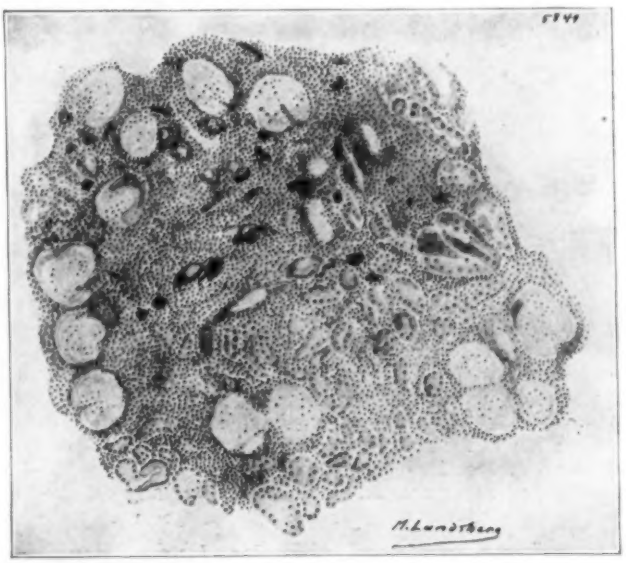

Fig. 3.—Microscopic section, showing patchy infiltration of interstitial tissue with mononuclear cells; hyaline remains of many glomeruli, with an occasional well preserved glomerulus.

scrotum and perineum, in which multiple surgical incisions had been made, draining a seropurulent foul-smelling material. There was a surgical perineal fistula.

The right ureter, which was much thickened and dilated throughout most of its course, contained a top-shape calculus, almost black, about 1 cm. in diameter and about 8 cm. below the kidney pelvis. The ureter was much smaller immediately below the stone, but again dilated in its lower portion. The kidney pelvis and calices were considerably dilated, and were filled with creamy, purulent material. At the uppermost calix there was an opening through the remaining medulla, cortex and fibrous capsule about 5 mm. in diameter, at which point three small stones were located. The fluid from the kidney pelvis burrowed downward under the fatty capsule for about 4 cm., and then ruptured through the capsule into the perinephritic space. Just below this there was a large accumulation of purulent material lying within a sac about 7 cm. in length, lined with a pyogenic membrane. This, in turn, extended downward over and under the bladder. In the right inguinal region there was an opening about 2 cm. in diameter connecting this perinephritic abscess with the subcutaneous infiltration over the inguinal regions and in the scrotum, having ruptured through the fascia and muscles, and leaving the peritoneum intact. This perinephritic abscess also extended upward, having stripped the peritoneum from the diaphragm. The extraperitoneal portion of the liver and the entire right half of the diaphragm showed multiple small abscesses. The diaphragm was not ruptured, but was quite friable. The right pleural cavity contained about a pint of purulent material. The pleura was covered with a fibrinous exudate. The lungs were not examined. The peritoneum was not ruptured, although two small areas of fibrinous peritonitis were present: (1) on the ascending colon, and (2) just below the diaphragm.

The left ureter was normal. The left kidney was slightly larger than normal. The kidney pelvis showed a mild pyelitis, and contained many very small, dark colored stones.

The bladder was small and contracted. The prostate was normal in size and consistency. A necrotic membrane covered

portions around the trigon and posterior urethra (secondary to operation).

Histopathology.—Section of the right kidney showed a patchy infiltration of interstitial tissue with mononuclear cells. There was also a considerable increase of comparatively vascular fibrous connective tissue of a rather young type, which replaced the tubules in many areas. In these parts there were many hyaline remains of glomeruli, and only a few well preserved glomeruli to be seen. The epithelial lining in the convoluted tubules, when they were present, was relatively well preserved.

Section of the ureter just below the calculus showed no epithelial lining. The fibromuscular wall showed a slight patchy infiltration with mononuclear cells.

Section of the diaphragm showed the peritoneal surface covered with a pseudomembrane composed of fibrin and polymorphonuclear leukocytes. The underlying tissue showed infiltration with mononuclear and polymorphonuclear cells and fibrin. This extended between the muscle fibers, which were much swollen and showed very poor striations. Sections of the left kidney, pancreas and liver showed no lesions of note.

Diagnosis.—This was: (1) ureteral calculus (right), above a stricture of the ureter; (2) right infected hydronephrosis; (3) rupture of the upper calix of the right kidney; (4) right perirenal abscess; (5) purulent infiltration of retroperitoneal tissue and diphragm on the right side; (6) rupture of fascia and muscles in the right inguinal region, with purulent infiltration of the soft tissue of the groin, scrotum and perineum; (7) localized subdiaphragmatic fibrinous peritonitis, and peritonitis of a small area of the ascending colon, without rupture of the peritoneum; (8) empyema of the right pleura without rupture of the diaphragm; (9) urethral fistula (from operation).

CONCLUSIONS

1. This is apparently the only case on record in which a spontaneous rupture of the kidney has resulted in a perinephritic abscess which burrowed its way entirely through the body wall and presented itself as an extravasation of urine in the suprapubic region, scrotum and perineum.

2. An impacted ureteral calculus may be present without symptoms, provided the other kidney is functioning properly.

3. Strictures of the ureter exist pathologically as well as clinically, and present dilatations above and below the narrowed portion.

4. Spontaneous rupture of the kidney may occur without sudden, sharp pain, indications of internal hemorrhage, or the development of a retroperitoneal tumor, but may manifest itself by an insidious onset and the gradual development of a perinephritic abscess without definite urinary symptoms.

5. The peritoneum is more resistant to pressure and infection than all the remaining body tissues.

6. Localized peritonitis and empyema occur from extraperitoneal and extrapleural infections without rupture.

7. Back pressure into the kidney from incomplete drainage is sufficient to destroy most of the kidney and cause rupture of the entire kidney substance and capsule.

8. If the patient's general condition had warranted cystoscopy and thorough investigation, the correct diagnosis would probably have been made. Early drainage of the perirenal abscess might have saved his life.

901 Lexington Avenue.

Pneumonia Death Rate in 1923.—The death rate from pneumonia for seventy-five cities in 1923 was 1.51 per thousand population. In 1922 the death rate from this disease in seventy-four cities was 1.36 per thousand.—*Pub. Health Rep.* **39**:1667 (July 11) 1924.

INTERMITTENT CLAUDICATION (THROMBO-ANGIITIS OBLITERANS) INVOLVING THE INTESTINAL TRACT*

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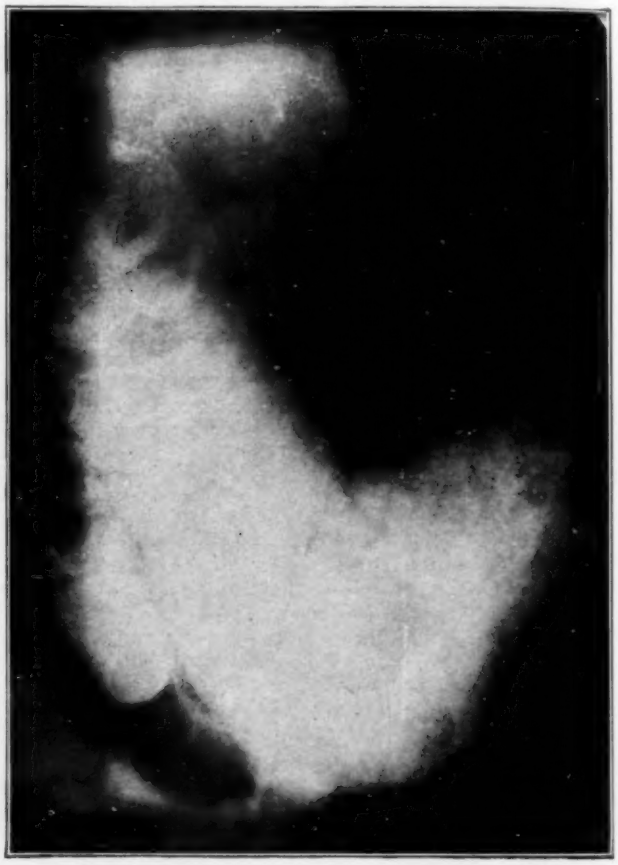
CHICAGO

Intermittent claudication is generally observed as a disease involving the blood vessels of the extremities. Variations from the usual forms are, however, known to occur. Thus, in 1901, Schnitzler [1] reported a case in a woman, aged 55, who suffered with severe cramps in the abdomen and constipation for four years. Shortly before death, pain became continuous and severe, and was not related to meals. Postmortem examination revealed an arteriosclerotic stenosis of the superior



Enormous dilatation of transverse colon.

mesenteric artery. Schnitzler termed his case "intermittende anemischer Dysperistaltik des Darmes," and drew attention to the similarity of his case to intermittent claudication of the extremities. He believed that the pain and other abdominal symptoms were due to an ischemia of the intestinal tract. In 1902, Ortner [2] described a similar case in a man, aged 55, who, two years previous to the onset of final symptoms, had a severe sudden pain in the epigastrium, following which he suffered from recurring abdominal pain from two to three hours after meals. Relief was obtained for a time, but two months before death the patient complained of severe constipation, severe intermittent pain and distention. The abdominal distention was not con-

* From the Medical Service, Michael Reese Hospital.
1. Schnitzler: München. med. Wchnschr., 1901, p. 506.
2. Ortner: Wien. klin. Wchnschr., 102, p. 1166.

stant; it appeared and disappeared. Postmortem examination showed an atheromatous aorta with sclerosis of the superior mesenteric artery. The stomach, small intestine and transverse colon were greatly distended. The descending colon and sigmoid were normal. Ortner also believed that the intestinal symptoms in this case were analogous to the clinical picture of intermittent claudication of the extremities, explaining the pain as being due to a spasm of the blood vessels. He termed his case, "dispragia intermittens angiosclerotic intestinalis," and suggested that intermittent claudication could occur in the blood vessels of the retina, brain, heart, kidney and intestines.

Following these reports, numerous observers [3] have reported cases of abdominal angina and gastro-intestinal disturbances associated with arteriosclerosis of abdominal blood vessels. I have made a review of the literature and can find no recorded case of true intermittent claudiation of the extremities associated with or followed by involvement of the blood vessels of the intestinal tract. The following is the report of such a case.

ROPORT OF CASE

History.—J. R., a man, aged 47, Russian, admitted to the service of Dr. Arthur Edwards, April 24, 1924, complained of pain in the abdomen, distention and occasional vomiting. The present complaints began about ten weeks before admission, prior to which time the patient had been free of any symptoms. The pain was described as being generalized over the abdomen, dull, cramplike, intermittent and lasting for a few minutes; it was accompanied by visible swelling of the abdomen. (This statement was also confirmed by a physician who saw the patient prior to admission to the hospital.) The pain was at times relieved by food, but more often exaggerated by food; at times it was relieved by an enema. Borborygmi movements were present, and the patient passed considerable flatus. Nausea was constantly present. There was vomiting once or twice weekly, but it was not related to food intake; the vomitus was clear fluid. The patient had been constipated for the last five years, and stated that he used from 1 to 2 quarts of liquid petrolatum weekly. In the last ten weeks, constipation has been much more marked, and the patient had used liquid petrolatum, cathartics and enemas, with a resulting bowel movement once a day.

In 1908, sixteen years prior to the persent admission, the patient was first admitted because of severe pain on the plantar surface of the right foot, especially when subjected to pressure or cold. He then showed signs of arteriosclerosis, and no pulsation was present in the dorsalis pedis artery. In 1911, ulceration of the toes of the right foot necessitated amputation at the tarsometatarsal joint. The process extended, the wound failed to heal, pain in the leg continued, and, in 1912, the right leg was amputated. Within a short period, the patient began to complain of a similar pain in the left foot, with characteristic paroxysmal cramping pains in leg. Ulceration first occurred in the second toe, then in the third and fourth toes, resulting in partial amputation, June 23, 1914. Sept. 26, 1914, the patient was readmitted to the hospital, with ulceration of the fourth toe, anesthesia of the foot, paroxysmal pain, and absence of pulsation in arteria dorsalis pedis. The left leg was amputated at just 4 inches above the knee joint, Dec. 11, 1914.

In 1907, according to the patient, he had an acute gastro-intestinal disturbance, and complained of nausea, indefinite abdominal pain, and diarrhea. This condition was of short duration. During observation at Michael Reese Hospital in 1914, the blood and spinal fluid were normal. There was no record as to whether or not the patient was a cigaret smoker.

3. Neusser: Wien. klin. Wchnschr., 1902, p. 965. Hamburger: Deutsch. Arch. f. klin. Med. **97**: 49, 1909. Gilbride, J. J.: Gastro-Intestinal Disturbances Due to Arteriosclerosis, J. A. M. A. **52**: 955 (March 20) 1909. Goodman, E. H.: Am. J. M. Sc. **155**: 524 (April) 1918. Hamburger, W. W.: Interstate M. J. **18**: 659, 1911; M. Clin. N. Am. **3**: 1682 (May) 1920. Keilty, R. A.: M. Rec. **92**: 19 (July 7) 1917. Buerger: Am. J. M. Sc. **136**: 567-580, 1908; 1909, p. 1319-1325.

Physical Examination.—April 24, 1924, the patient looked sick, although not acutely sick. The pupils were irregular, but reacted to light and in accommodation. The heart was moderately enlarged to the left, but there was no alteration in tones. There were many wheezing râles over the chest. The abdomen was greatly distended. There was a very definite, visible and palpable enlargement of the colon, so that it was easily outlined. The palpating hand could grasp it readily. Peristalsis was present and visible. Tympany was marked throughout, as shown in the accompanying illustration. The rectal examination was negative. A faint pulsation was obtained in both femorals.

Laboratory Studies.—The Wassermann test was negative. The Ewald fractional meal was given with the following results: The empty stomach contained 65 c.c. clear fluid, free hydrochloric acid, 20, and combined, 17. The gastric curve of secretion was within normal limits. No blood was found. The stools were negative for blood, but positive for mucus. The urine showed albumin +, trace. Chemical examination of the blood showed: nonprotein nitrogen, 48 mg.; uric acid, 4.4; creatinin, 1.5. The red blood count and differential count were normal.

Roentgen-ray and fluoroscopic studies by Dr. Arens, April 28, 1924, showed that the stomach was atypical in type, the greater curvature extending down to the crest line, but the pyloric antrum appeared crowded back on the lesser curvature from the colon, which contained a tremendous amount of fluid and appeared considerably dilated. The fluid level in the right and left half of the colon in the upright, lay above the crest line. No intrinsic gastric defect was noted.

The twenty-four hour examination showed the barium entirely in the colon. The colon was tremendously dilated, the transverse segment being dilated to at least three diameters. The entire colon was dilated up to the splenic flexure, and was filled with a mixture of barium and fluid. No opaque medium was observed in the descending and sigmoid colon.

On observation at forty-eight and ninety-six hours, the colon presented exactly the same appearance as at twenty-four hours.

An opaque enema was given; the colon filled readily up to the sigmoid flexure. Beyond this point it was impossible to pass the opaque medium.

The roentgenographic films confirmed the fluoroscopic findings, showing a tremendously dilated proximal colon, the dilatation involving the cecum, ascending colon, hepatic flexure and transverse colon, up to the splenic flexure. There was nothing characteristic about the site of the obstruction to suggest the etiologic factor.

The opaque enema disclosed the rectum and sigmoid colon to contain the opaque medium. The descending colon, however, was empty except for a mixture of gas, fecal material and a small amount of barium. It did not appear as though there was an actual obstruction at the descending sigmoid colon, but rather as though the descending colon were filled with fecal material preventing the passage of opaque enema.

Subsequent Course.—The patient continued to complain of severe pains, which were growing more intense. The abdomen became more distended and the skin was tense over it. The patient left the hospital, only to return again six days later, apparently much worse. The pain was now continuous. During a period of six days, the patient had had no bowel movement. It was apparent that the patient was progressively getting in poorer condition. We were confronted with the possibility of adhesions, or malignancy as an association with the arteriosclerotic changes in the blood vessels of the extremities. Exploratory operation was suggested as a possible chance to relieve any obstruction. May 17, Dr. Greensfelder opened the abdominal cavity of the patient under ether anesthesia. The transverse and ascending colon and all the loops of the small bowel were greatly distended. No collapsed loop of bowel, obstruction or organic lesion was found. The walls of the entire bowel were greatly hypertrophied. The aortic pulsation was weak, and the right iliac pulsation feeble. The vessels were sclerotic. Ileostomy was performed, and a small rubber catheter was inserted. The mesenteric vessels were sclerotic and no pulsation was

obtained. The patient died forty-eight hours after the operation. No necropsy was obtained.

COMMENT

As has already been remarked, clinicians have described gastro-intestinal disturbances, associated with and attributed to arteriosclerosis of the abdominal aorta and its branches. Very often, however, it is difficult clinically to differentiate such cases from the instances of general arteriosclerosis, or coronary sclerosis with gastro-intestinal symptoms. The clinical expressions, such as paroxymal abdominal pain, pain in the umbilical region, distention and constipation, are symptoms common to both groups. It is known, for example, that true angina pectoris may present a picture simulating peptic ulcer or cholelithiasis. One might, therefore, question the probability of a localized arteriosclerosis of the blood vessels of the intestinal tract producing the picture described in some cases. In this patient, however, the history points to a progressive, obliterating arteritis, beginning in the lower extremities and proceeding upward to involve the abdominal aorta and its branches. This was confirmed at operation. The enormous dilatation of the colon was not easy to explain. We were of the opinion that an obliterative arteritis had taken place in the blood vessels of the intestinal tract, particularly the superior and inferior mesenteric arteries, but that these had established sufficient collateral circulation to supply nutrition to the bowel. Ortner [2] calls attention to the observation of Litten, who found that the superior mesenteric artery is not anatomically an end artery but is functionally so. With failure of blood pressure, a failure of collateral circulation may occur. He likewise calls attention to the fact that, in slow obstruction of the mesentery, collateral circulation may be established, and anatomic and functional changes in the intestines remain unaltered. It is noteworthy that, in Ortner's case, dilatation of the stomach, small intestine and transverse colon were present, while the descending colon and sigmoid were not involved. This he explains as being due to the fact that the superior mesenteric artery supplies the intestine as far as the transverse colon, while the descending colon is supplied by the inferior mesenteric, which was not involved in his patient. In our patient, however, the entire intestinal tract was involved, and at operation no pulsation was obtained in the mesenteric vessels. It is our belief, however, that the collateral circulation was sufficient to maintain adequate blood supply to the bowel.

Of greatest interest is the association of intermittent pain with intermittent distention. This occurred only early in the course of the patient's complaint, and as the disease progressed, pain became continuous, and distention and constipation more constant. The paroxysmal, intermittent character of the pain and distention directed our attention to the similarity to intermittent claudication, an intermittent ischemia or spasm of blood vessels producing a temporary asphyxia, with resulting distention, vigorous peristalsis, and an apparently temporary ileus, eventually becoming a chronic ileus, as long as the circulation was maintained.

Neusser,[3] likewise Schnitzler,[1] observe that increased activity of the intestine produced by intake of food, catharsis or enemas produce in such cases an ischemia of the already poorly supplied intestines, thus explaining the periodic aggravation of symptoms after meals; also, the greater the activity of the bowel, the greater the distention and the consequent dilatation. It was expected that as the course of the disease continued, the changes in blood supply would become more impaired, eventually producing an acute ileus.

The unusual distention and dilatation also suggested the possibility of an obstruction, due either to malignancy or to adhesions. The appearance of the patient, the wasting, pallor and loss of weight, were added clinical factors in favor of such a view. A malignancy might be present, merely coincident with the angiosclerosis of the extremities. We were, however, inclined to discard this possibility, because of the intermittent paroxysmal pain and distention, and the absence of blood in the stools. Gilbride [3] particularly calls attention to the fact that patients with arteriosclerosis who present gastro-intestinal symptoms and in whom the hydrochloric acid may be absent, are very often suspected of having malignant disease of the stomach.

SUMMARY

A man, aged 47, had thrombo-angiitis obliterans, involving the intestinal tract. Sixteen years previously, he suffered with the same process in both lower extremities, for which amputation had been performed. The chief abdominal symptoms were severe intermittent and later continuous pain, associated with enormous enlargement of the colon. The clinical picture suggested a chronic ileus, because of the severe constipation, occasional vomiting, distention of the bowel and visible peristalsis. It is important to differentiate this condition from coronary sclerosis with abdominal symptoms, abdominal angina, and also from malignancy of the bowel.

REPORT OF AN EPIDEMIC OF PARATYPHOID FEVER IN PATRONS OF A CAFETERIA *

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AND
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March 25, 1921, investigation of the outbreak here reported was requested by the chief of the department of medicine and by the director of the students' health service of the University of Minnesota. Our attention was called to the facts that all known cases were in men, and all had eaten at the men's union cafeteria on the university campus. At that time there were twenty-five or thirty known cases in students suffering from an acute febrile condition associated with prostration and various symptoms of gastro-intestinal and respiratory disturbances. Owing to the rapid onset, the character and mildness of the symptoms, accompanied by fever, with disproportionate prostration, and followed by rapid subsidence of acute symptoms, the disease had been considered to be influenza of an intestinal type. On the date mentioned, with the appearance of rose spots in a few cases, and the finding of the Widal reaction to be positive in blood specimens from two of the patients and atypical in that from a third, the diagnosis of typhoid fever was made.

The investigation was begun, March 25, but the exact type of infection was not determined till March 30, when it was conclusively demonstrated that *B. paratyphosus* B was present in a feces specimen obtained from one case, March 25.

* From the Minnesota State Board of Health, Division of Preventable Diseases.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

The University of Minnesota, located on the east bank of the Mississippi River, within the city limits of Minneapolis, in March, 1921, had an enrolment of approximately 7,500 students, about two thirds being men. There are no dormitories for men, and while many students live in clubs or fraternity houses, the majority live in private houses in Minneapolis and St. Paul. Many obtain but one, or at most, two meals, at the union or nearby restaurants, while, of those who room near the university, many obtain all or nearly all meals at the union.

TABLE 1.—*Cases by Sex and Social Group*

	Male	Female	Total
Students	78	6	84
Faculty members	1	.	1
Cafeteria employees	6	1	7
Outsiders	10	4	14
Total	95	11	106

The men's union cafeteria is owned and managed by the men's union, which sets the standards of service. It is open on week days to male members of the student body and faculty, and male employees of the university. On Sundays, it is also open to women, and many friends of regular patrons, both men and women, are served on Sundays. Approximately 1,500 meals are served daily. It also gives service in private dining rooms for suppers, banquets, committee luncheons, etc., attended by both men and women.

At the time of the outbreak, there were ninety-six employees, twenty-eight full-time women employees and sixty-eight part-time men students. A number of the full-time workers and most of the part-time workers had little or no real contact with ready-to-eat food served to others.

THE EPIDEMIC [1]

Between March 4 and April 13, including two deaths, there were 106 cases of paratyphoid fever in students, members of the university faculty, cafeteria employees, and in persons who were not connected with the university but who had had one or more meals at the men's union cafeteria. The diagnosis was confirmed through the agglutination test in blood from ninety-two patients and through the isolation of *B. paratyphosus* B (Schottmüller type) from stools or urine in twenty-one cases, and from the blood in one case.

INCIDENCE

During the first ten days of the outbreak, March 4 to 14, only nine cases were recorded, while eighty-three, or 78 per cent., of all cases developed from March 14 to March 21, inclusive, as shown in the accompanying chart. It was during this period of heaviest incidence that six of seven cafeteria employees who fell victims to the infection became sick (March 14, 15, 17, 18, 18 and 21, respectively), while the seventh patient had the first symptoms of illness, April 2. There were only ten instances of roommates or of more than one in the same family being affected. In each instance, both patients fell sick within a seven day period, and both were considered to be of primary origin. The cases that appeared later than March 21 were apparently of primary origin also.

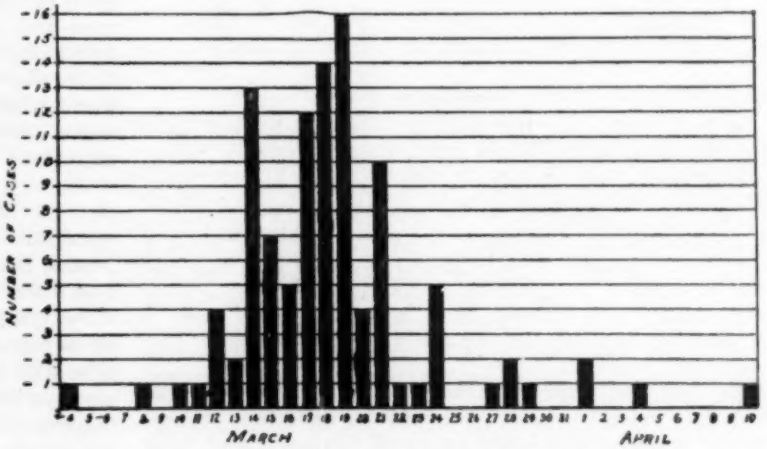
INCUBATION PERIOD

Seven cases developed in persons who had taken only one meal at the union, March 13. The incubation period in these seven cases varied from two to eleven days, the average being 5.7 days. Three students from an Iowa college, in passing through Minneapolis, took only two meals at the union, dinner, March 13, and the noon meal the following day. They developed first symptoms, March 14, March 17 and March 18, respectively.

If eleven days is considered the maximum period of incubation, it would appear that the source of infection must have been continuously or intermittently present over a period of approximately one month.

CHARACTER OF ILLNESS [2]

More than one third of the cases were in persons who had been immunized within three or four years. Although a wide variation, both in duration of illness and in severity of symptoms, was observed, no relation between previous immunization and the character of illness was noted.



Daily incidence of 106 cases of paratyphoid fever.

Seventy-two patients were cared for in hospitals for at least a part of the period of illness in each. One had severe intestinal hemorrhages and died on the twentieth day of illness. Two patients, one hospitalized in Minneapolis and one who had gone to his home, had symptoms leading to a diagnosis of appendicitis and were operated on on the fourth and ninth day, respectively. One died on the twenty-first day of illness, seventeen days after operation; the other devel-

TABLE 2.—*Incubation Period in Ten Persons Infected at Dinner, March 13*

Case 25	2 days
Case 34	3 days
Case 47	5 days
Case 68	6 days
Case 80	7 days
Case 87	8 days
Case 95	11 days
Case 17*	1 days
Case 32*	4 days
Case 37*	5 days

* Patient also had luncheon at union, March 14.

1. The field work was done by Dr. C. H. Halliday (now with the state board of health of California) and Dr. J. N. Gehlen, epidemiologists, and by assistants.

2. A full clinical account of fifty-two cases treated in the Students' Health Service Infirmary is given by McKinlay, C. A.: Epidemic of Paratyphoid Among University Students, Minnesota Med. 5: 172 (March) 1922.

oped mastoiditis, and finally recovered, after an illness of forty-one days. Otitis media and mastoiditis occurred in three others, one of whom also developed spondylitis.

Of the remaining sixty-seven uncomplicated hospital treated cases, forty-four entered a hospital during the first week of illness, fifteen entering on the second or third day. In studying the temperature records of the forty-four cases, the following points were noted:

1. The rapid rise of the fever, approaching or reaching the maximum temperature on the second or third day in the majority of cases.
2. The remittent type of fever showing wide diurnal variations.
3. A tendency toward recrudescence of fever and increased pulse rate in more or less regular waves.
4. Rapid lysis in most cases.

TABLE 3.—*Symptoms Recorded in Eighty Cases*

	Number	Per Cent.
Headache	73	91.2
Rose spots	61	76.2
Malaise	59	73.7
Diarrhea	39	48.7
Palpable spleen	29	36.2
Epistaxis	25	32.5

FINDINGS

Of the 106 cases, 103 were in persons who had eaten one or more meals at the men's union cafeteria during a two weeks period prior to the onset in each. Three cases were in students of the university, two of whom gave no history of eating at the union at any time; and the third asserted that he had not eaten at the union for at least a four weeks period prior to onset. No association with known cases was discovered, and it is possible that these three cases do not belong to this outbreak.

In considering the probable vehicle of infection, meat was first ruled out, since cold meats, including pressed meats, summer and other prepared sausages, and meat jellies, had not been served, and roasts and other meats served hot were thoroughly well cooked. Ice cream, salads and bottled milk were ruled out, since these foods had been served also in the private dining rooms, at banquets, club luncheons, etc., among the patrons of which no cases arose.

One hundred patients admitted having consumed milk as a beverage, or on breakfast food, puddings, etc., or in coffee. Seventy-three cases were in milk drinkers, sixty-two of whom drank bulk milk, while eleven remembered drinking bottled milk only. Since the top of the bulk milk was used in coffee, on puddings, etc., and, on Sundays, only bulk milk was served for all purposes, it is probable that a much larger number than recorded consumed bulk milk at some time.

Two children, who with their parents took only Sunday dinners at the union, became ill, March 16 and March 18, respectively, while their parents remained well. As the children had partaken of the same foods as their parents, with bulk milk in addition, the suspicion that bulk milk was the medium of infection was confirmed.

All milk used at the union was obtained from a local dealer, the bulk milk as well as the bottled having been pasteurized. Since the 50 gallons of bulk milk delivered to the union daily constituted only 1.22 per cent. of the local dealer's output of bulk milk, it seemed probable that the milk had been infected after its delivery. The bulk milk was received at the union in large cans, and at once placed in a refrigerator. Before meal-time, the milk was poured into heavy earthenware pitchers immediately on their removal from a steam sterilizer. From the pitchers, heavy tumblers just removed from the sterilizer were filled and allowed to stand for varying periods of time, giving opportunity for bacterial growth.

In a search for carriers, *B. Paratyphosus* B was isolated from the stools of four of the full-time cafeteria employees, one a meat cook, one a pastry cook, one a bakery assistant, and one a scullion. All four had been employed throughout the school year. Three of the four denied any symptoms of recent illness. The one who admitted recent illness had had abdominal pains and diarrhea between the 15th and 20th of March, but had continued to work. A second one of those infected was also ill at the same time, with similar symptoms, if the information given by associates is accepted. It is improbable that either of the remaining two had had any recent symptoms of illness. One, however, gave a history of having had typhoid fever in 1878, but she asserted that she had conducted a boarding house for years and that she knew of no cases of typhoid fever among her patrons or associates. In each of the four the contact with the milk supply was rare and in such a limited way as not to suggest any great probability of infecting it.

In the blood from four other full-time employees, paratyphoid B agglutinins were present, but three or more specimens of stools and urine from each were examined with negative results.

Among the sixty-eight part-time employees, in addition to the six who are included as cases, three developed mild but indefinite symptoms of illness on or after March 20. They complained of headache, malaise, and had some fever, the symptoms lasting about seven days. *Paratyphoid* B agglutinins were present in blood from all three. In three others not previously immunized, who had no symptoms, paratyphoid B agglutinins were also present. Isolation specimens, i. e., bowel and bladder discharges, from all six, as well as from remaining employees, were examined with negative results.

Further investigation was made to determine, if possible, to what extent paratyphoid infection had spread within the student body without causing sufficiently characteristic symptoms to raise the question of a specific bacterial infection, and also to determine whether there were any cases of paratyphoid fever in Minneapolis and St. Paul at the time of this outbreak which were not related to it.

Blood specimens for the agglutination test were taken from nearly a thousand students and outsiders. Effort was made to obtain multiple specimens of stools and urine from all in whose blood paratyphoid agglutinins were present. It was impossible, however, to obtain specimens from all who were requested to submit them, and, in a few instances, only one set of specimens from each person was received. Those included in this investigation naturally fell into four groups, as follows:

1. Students who presented themselves to receive typhoid vaccine, March-April, 1921.
2. Students who sought medical advice at the health service dispensary, March-April, 1921.
3. All reported typhoid fever cases in Minneapolis or St. Paul, March-April, 1921.
4. Patients having no known connection with this outbreak from whom their respective attending physicians submitted specimens for the Widal test to the board of health laboratories of Minneapolis or St. Paul during March-April, 1921.

Detailed results of this collateral investigation cannot be given here.

In Groups 1 and 2 there were fourteen students who presented mild indefinite symptoms of illness between March 5 and April 10, in whose blood paratyphoid B agglutinins were present. Eight had been previously immunized, while six had not been immunized. There were also five students, not immunized, who had had no symptoms, and whose blood showed paratyphoid B agglutinins. *B. paratyphosus* B was isolated in only one instance, from discharges of one student who had had no recent symptoms and who gave no history of typhoid fever or of any prolonged illness that might have been typhoid fever.

In Groups 3 and 4 there were three cases in which the agglutination tests together with the clinical history led to a diagnosis of paratyphoid fever. A blood specimen from one on the twelfth day of illness showed the presence of paratyphoid B agglutinins, while typhoid agglutinins were absent. In a blood specimen from the other two patients, paratyphoid agglutinins were present in a higher dilution than were typhoid agglutinins. Isolation specimens from two of these cases were examined, with negative results; no specimens were obtained from the third case.

A fourth unreported case of probable paratyphoid fever which occurred in April was brought to light later through a routine epidemiologic investigation made in June, 1921. A child living outside of Minneapolis was reported as having typhoid fever. *B. paratyphosus* B was isolated from stools of this child and also from the stools of the child's grandmother, who lived in Minneapolis and to whom the case was epidemiologically traced. The grandmother had had a two weeks' illness in bed during April, with fever, abdominal pain and diarrhea. She had had no medical attendance. This woman and the three patients of Group 3 lived on the west side of the river, quite remote from the university, and had no known association with any one connected with the outbreak or with one another.

RODENT AND RODENT VIRUSES

An effort was made to determine whether rats or mice in the vicinity of the men's union and the milk plant supplying the men's union were infected with paratyphoid organisms, and, further, to determine whether paratyphoid bacilli were present in any of the rat viruses then on the market.

No organisms of significance were found in rat and mouse droppings collected from five places, or in seventeen rats that were killed or trapped and examined post mortem, only three of which showed any signs of illness. But four samples of three different kinds of rat viruses were examined. In three samples the manufacturer's date of expiration had passed before the sample was secured. From two, organisms were obtained which culturally resemble *B. paratyphosus* B but are not agglutinated by stock paratyphoid B immune serum or by the serums from the victims of this outbreak, and appear to fall into the *B. aertrycke* group of Jordan.

COMMENT

In the study of this outbreak, one naturally concludes that the bulk milk to which infection was epidemiologically traced was infected by a carrier or by a mild but missed case among the cafeteria employees. No evidence of mild cases occurring in food handlers prior to March 13 could be found. The finding of two well food handlers who were carying infection rendered it impossible to fix on either one as responsible for the outbreak. The probability that still other food handlers were infected, as suggested by the presence of paratyphoid agglutinins in blood specimens from them, complicated the question still further, and at the same time suggested the possibility that all infected persons among the cafeteria employees may have been victims of, rather than sources of, infection in this outbreak.

We were baffled in our attempts to find any source of infection in the three cases in students who had not eaten at the union and had had no association with known cases; in the three outside cases in persons whose blood gave serologic evidence of paratyphoid B infection; and later, in the probable April case which was investigated in June.

The occurrence even of only four outside, and apparently unrelated, cases of paratyphoid fever in Minneapolis during March-April, 1921, suggested that some unusual dissemination of infection had taken place, given rise to what was believed to be an unusual, though small, number of cases apart from the union outbreak.

In casting about for a possible source of infection that might account for all cases, including those apparently unrelated to this outbreak, two questions arose:

1. Could rodents infected by rodent viruses be a factor?

2. Could the milk be infected by being brought in contact with paratyphoid-infected meat?

Just prior to this outbreak, an active campaign against rats had been carried on by and through commercial bodies, and rat viruses of different brands had been advertised and used widely. A very limited investigation of rodents and rodent viruses gave only negative results. No investigation relative to the second question could be made at the time it was considered.

We are aware that those who have studied the paratyphoid-enteritidis group of organisms most thoroughly consider that *B. paratyphosus* B of the Schottmüller type is usually of human origin. Even so, is it not possible that rodents or other lower animals may become the agent of transmission of the Schottmüller or human type, temporarily at least?

This outbreak emphasizes the necessity for greater vigilance in the protection of the food supply of large groups. It is recommended that in all public and semi-public eating houses and all public and private institutions, including industrial and recreational camps, fairs and bazaars, (1) a routine examination of all food handlers be required, in order to eliminate from this occupation carriers of typhoid and paratyphoid bacilli, and (2) all milk to be consumed uncooked be pasteurized or certified and served in the original container.

SUMMARY

1. Of 106 cases of paratyphoid fever occurring largely among university students, 103 were in patrons and employees of a cafeteria. The three remaining cases were in university students who stated that they had not eaten at the cafeteria and had not come in contact with known cases.

2. Four cafeteria employees, of whom two had no symptoms and two were but mildly ill, were found to be carrying paratyphoid bacilli. Evidence was presented indicating probable infection of still other cafeteria patrons and employees.

3. Evidence pointed to pasteurized milk, sold in bulk, as the vehicle of infection, the probability being that the milk was infected after delivery to the cafeteria. The impossibility of fixing on any one individual among the

food handlers as "the carrier" responsible for infecting the milk was brought out.

4. Evidence was presented indicating a probable increased prevalence of paratyphoid fever in Minneapolis, synchronous with this outbreak but not directly related to it.

5. Bacteriologic investigation of a small number of rodents and rodent viruses failed to indicate that rodent viruses are a factor in the occurrence of paratyphoid fever.

ABSTRACT OF DISCUSSION

DR. N. O. GUNDERSON, Rockford, Ill.: Along the same line of paratyphoid infection, there have been three different outbreaks. It is advisable that all instructions specify that pasteurization be done away with. The reason for that is that at the college we had three outbreaks in three different years, all due to the pasteurized product. The milk was used as a food. It was merely incubated at the college for half an hour prior to being consumed.

SOME ORIGINAL BLOOD PRESSURE OBSERVATIONS

SECOND PAPER

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Blood pressure sometimes varies in the right and left side, and I believe that it also varies in local parts of the body. For years I have tried to perfect an apparatus for obtaining readings in various parts of the body, but so far without success.

In cases of paralysis following cerebral hemorrhage, it is quite usual to find the blood pressure from 20 to 30 mm. lower on the affected side than on the side unaffected. At first thought this would seem to be easily explained; e. g., that, owing to the cerebral rupture with its resultant paralysis, the vasoconstrictor nerves had become paralyzed, thus allowing an arterial and capillary dilatation. The arteries and capillaries thus have a larger caliber, and so the pressure falls. If that were so, the blood supply to the affected side would be increased, and atrophy of the part would not so quickly ensue.

It has been my experience to find that the radial artery on the paralyzed side has invariably become smaller, the capillaries are apparently smaller, and an anemia rather than a hyperemia exists. As a result, the part looks more anemic, it feels colder, and a muscular atrophy takes place.

I rather believe that, following the apoplectic stroke, the vasodilators of the affected side are paralyzed, thus allowing the whole circulation, especially the larger entering vessels, to become unduly constricted, cutting down the blood supply to the paralyzed member; and so, the discrepancy in blood pressure is explained. The following case shows this phenomenon from the cerebral hemorrhage through several weeks of observation and treatment:

The first reading, twenty-one days after cerebral hemrrhage, was: Left, or unaffected, arm: systolic, 242; diastolic, 116; pulse pressure, 126. Right, or affected, arm: systolic, 220; diastolic, 116; pulse pressure, 104. The readings continued in about this proportion until the end of a ten weeks' observation, when the last reading showed: Left, or unaffected, arm: systolic, 186; diastolic, 104; pulse pressure, 82. Right, or affected arm: systolic, 152; diastolic, 98; pulse pressure, 54.

Does the blood pressure in these cases ever go low enough so that the two sides become equal? The condition in these patients is generally so far advanced that it is not advisable, or perhaps even possible, to reduce the blood pressure low enough to find out. Probably this inequality persists. I have had but one case in which the reverse of the foregoing took place.

RESULT OF AN AGGRAVATION OF SYMPTOMS

An aggravation of symptoms may mean either a rise or a lowering of the blood pressure. Either with or without a great atmospheric change, certain patients will have many of their symptoms greatly aggravated. The blood pressure is immediately taken for fear that a great rise has taken place and cerebral hemorrhage is imminent. In such cases I am often surprised to know that, instead of a rapid rise, I find that the patient has had a sudden drop of from 15 to 25 mm. Any exacerabation of a patient's symptoms should mean an immediate and thorough taking of the blood pressure in at least two different positions.

HEIGHT TO WHICH THE BLOOD PRESSURE GOES

Authentic reports on the height to which the blood pressure ever goes are wofully lacking. One reason is that many reports of exceptional high blood pressure readings are taken with a dial apparatus, which may give fairly accurate readings on the lower scale and yet be off as much as from 20 to 30 mm., on the higher readings, in which case the machine nearly always registers higher than the actual blood pressure.

A few accurate investigators have taken readings at 300 mm. or better. The highest I have ever recorded occurred in a man, aged 62, in the last stages of a chronic cardiovascular-renal disease. On two different days there was a reading of 306 mm. The blood pressure was taken on a well known hand-calibrated mercurial apparatus, the sleeve properly adjusted, and the reading taken several times by two others, as well as myself.

LOWEST BLOOD PRESSURE ADVISABLE

The question as to how low it is advisable to reduce the blood pressure is almost unanswerable. Each patient is a different factor from every other patient, so no rule should be made to apply to more than one. There are however, cases with a simple constriction of the capillaries in which the blood pressure has in a short time gone to 160 or 190 and no permanent damage is done, which may almost be taken as a type. These patients have few or no symptoms, and the heart is unaffected.

Under a proper diet, graduated exercise, baths, massage and medication, if the blood pressure is not dropped too rapidly, it is not unusual for such patients, in a few weeks to have the blood pressure reduced to 115 or 120 mm., and then if their life be regulated this may be made to remain at the low point for years. Physicians seldom get such cases.

When a chronic cardiovascular-renal disease is present, our problems are complicated, indeed. The heart muscle, the arterial walls and the kidneys must all be taken into account, the heart muscle particularly. Often a greatly distended heart will contract as fast as the blood pressure is reduced, its tone increase, and with this increased tonicity its contractive power is increased and so, for four or five weeks, the blood pressure is not seemingly reduced. Then, as soon as the heart has reached to somewhat like its normal size, its power

becomes more constant, and then the blood pressure readings will begin to drop.

To what extent is it advisable to continue our reduction? This will depend on whether just medicine is used, or whether this is accompanied by diet, elimination and graduated physical up-building. If the last accompanies the medicine, we may ofttimes bring about a dropping which would have a short time before seemed impossible.

The heart is our index. Again, for a time as the resistance is lowered, dilated arteries and capillaries will contract, and thus for a time retard our blood pressure dropping, acting much as the contracting of the heart muscle following a decreased resistance in the arterial, capillary and venous parthways.

The following case will show how the blood pressure may be lowered in a case of cardiovascular-renal disease with all the classical symptoms, the history, physical examination and urinary examination. In a woman, aged 63, the blood pressure ranged from 230 to 176 mm., and there was a constancy in relation to lying supine or standing. The patient had a good heart muscle. For seventeen weeks she underwent a rigid diet and had the advantages of institutional treatment and constant supervision. In six weeks the systolic blood pressure had come from 230 mm. to 160, the heart muscle getting stronger as treatment continued. In twelve weeks the systolic blood pressure had gradually and constantly dropped to 145 and to 140 mm. In this case it was advisable to bring about a further reduction because the heart muscle was getting stronger as was the general physical body under graduated exercise.

Finally, in fifteen weeks the blood pressure showed a beginning reversal type as follows: Standing, systolic, 116; diastolic, 64; pulse pressure, 52. Supine, systolic, 132; diastolic, 62; pulse pressure, 70. Elimination was then reduced, as was also the medicine. The only change to be noticed was a disappearing of the reversal type, and at the end of stay, or seventeen weeks, we had the following: Standing, 132; diastolic, 64; pulse pressure, 48. Supine, systolic, 134; diastolic, 72; pulse pressure, 62.

Now, in advanced cases with much fibrosis and a weak heart muscle, some cases, even under the best of treatment, will begin to show signs of decompensation if the systolic blood pressure is reduced to below 180 or even 190 mm. So each case must be taken as an entity.

INACCURACY OF BLOOD PRESSURE READINGS BECAUSE OF AN IRREGULAR HEART ACTION

One of the most perplexing things in taking the blood pressure is often encountered in those patients who have an irritable and irregular heart. In taking such readings, one must be very careful or the reports will be put down in a most inaccurate manner. In these cases it would seem that, each time the heart skips a period, a third phase with its contraction is apt to have a force much greater than would have been the case had there been three contractions instead of two. Thus it is that, in taking a sphygmomanometer reading, while the air is gradually being reduced in the apparatus and the mercury is falling, it may reach a certain height at just the time a previous hard contraction of an explosive character has taken place, and while the next two or three beats have been omitted and the regular contraction takes place, there may be a dropping of from 3 to 10 or an increase as high as 12 points of the scale. So it is that in such cases if one is to get the reading accurate one must bear this point in mind, shove the mercury up in the scale two or three times, and then take an average reading.

BLOOD PRESSURE TAKEN FIRST STANDING, THEN LYING SUPINE AND AGAIN STANDING

I will cite an instance to illustrate what might be considered to be carrying accuracy too far. Many patients who come into a physician's office and have their blood pressure taken first while standing and then lying supine will in each case give an inaccurate reading, as there is no indication as to what the blood pressure would be if the patient were lying supine for a few minutes. If the blood pressure reading when first taken shows a certain height and then, with the patient lying supine, shows a lower reading than when standing, it will again show a dropping, when the patient first assumes the standing position, to a point sometimes even lower than that taken with the patient lying supine. This has been proved in so many cases that it can almost be said to be a rule.

This phenomenon I encounter in many cases, and it only tends to show how a physician may get an inaccurate idea of the true readings if he relies on only one observation. I have had patients show this reaction from the beginning of a ten weeks' treatment each week on through to the end.

In a case that is quite characteristic, the readings on admission were: Standing, systolic, 246; diastolic, 118; pulse pressure, 128. Supine, systolic, 216; diastolic, 104; pulse pressure, 112. Again standing, systolic, 224; diastolic, 108; pulse pressure, 116. Thus, there was a drop in the systolic of 22 mm., after lying prone not more than two or three minutes. As the treatment proceeded, the readings were: Standing, systolic, 224; diastolic, 96; pulse pressure, 128. Supine, systolic, 204; diastolic, 74; pulse pressure, 130. Again standing, systolic, 214; diastolic, 96; pulse pressure, 118.

In ten weeks of elimination, diet, etc., the readings were: Standing, systolic, 184; diastolic, 100; pulse pressure, 84. Supine, systolic, 162; diastolic, 98; pulse pressure, 74. Again standing, systolic, 168; diastolic, 96; pulse pressure, 72.

Thus, from the very first reading and each subsequent observation throughout the course of treatment, this reaction always appeared.

The more blood pressure readings I take, the less secure I feel without taking several readings under different conditions and in different positions.

BLOOD PRESSURE REACTIONS RUNNING A MOST ERRATIC COURSE

One of the most unsatisfactory conditions sometimes encountered in cardiovascular-renal disease is one in which the blood pressure does not run a constant course, but jumps about the scale in an erratic manner, being high one day and dropping several points on the next day, or perhaps having for a short time a fairly constant course and then apparently without any warning giving a systolic reading from 20 to 30 points higher. Strangely enough, this erratic condition is not confined to those patients having a nervous temperament.

The following case of cardiovascular-renal disease is a good illustration: On admission, supine, the systolic pressure was 216 mm., diastolic, 104 mm. Within ten minutes, the reading was: Supine, systolic, 222; diastolic, 90; pulse pressure, 132. Standing, the systolic pressure had dropped to 212, diastolic, 104; pulse pressure, 108. Throughout the patient's stay and treatment, the blood pressure readings were at all times erratic.

Now, strangely enough, this patient was not of a nervous temperament, very rarely excited about anything, yet presenting these extremely erratic and dangerous blood pressure readings.

This condition, in my observation, has in almost every case been encountered not in those cases in which the arterial system is greatly fibrosed, but rather in those cases in which the blood pressure has risen rather rapidly and before a general arterial fibrosis has taken place.

DILATATION AT ASCENDING PORTION AND ARCH OF AORTA

I have encountered dilatation at the ascending portion and arch of the aorta in such a large percentage of patients suffering from arterial hypertension that I feel justified in giving it more than mere mention. It is surprising how comparatively few physicians discover this condition at its beginning, and if they do discover it, fail to realize its significance, or take proper steps to produce relief.

I make it a routine practice in all cases of high blood pressure to determine whether the walls of the aorta are yet sustaining the shock which they are called on to take at every contraction of the left ventricle without weakening and dilatation. As the resistance in the arterial, venous and capillary pathways increases, the left ventricle must of necessity contract with greater force, and the volume of blood is suddenly hurled out into the aorta with tremendous force. At the end of the ventricular contraction this propelling force ceases, and the semilunar valves under this great back pressure come back with great force and close, leaving the aorta to take up and absorb the shock. Of course, the ascending aorta and arch, having to stand the brunt of the attack, are the first to suffer. So the walls begin to dilate, and now appears the small area of pulsation which may increase in size, depending on the condition of the walls and amount of pressure exerted. If this condition is recognized early and the blood pressure lowered, the dilatation will soon disappear. This, however, is not often the case, and the dilatation remains for so long a time that a large sac is formed, the muscular tone is lessened, and the dilatation remains even after the hypertension has been brought down.

Even this is a great gain, for the heavy, hard throbbing, bulging mass under a lowered tension appears as a flabby pulsation which gives but little discomfort and, with the other symptoms more bearable, is in time forgotten.

INFLUENCE OF WEATHER CHANGES ON BLOOD PRESSURE

The influence of weather changes on blood pressure is greater than one would at first think. I have repeatedly noticed that certain barometric and hygromatic changes produce great variations in blood pressure. This field is open to investigation, and promises to reveal some interesting facts. I hope to be able to report a series of cases in about two years which, I believe, will show that the majority of apopletic strokes coincide with some great atmospheric disturbance. In the meantime, the following may prove interesting, and with this clue to follow, patients in whom a stroke is feared may be more carefully watched and tided over these disturbances, and so the arterial rupturing may be postponed for a considerable time. In my experience there have been two distinct kinds of atmospheric changes which have caused great worry in cardiovascular-renal cases. First and, I believe, of moment, is a great atmospheric change coming on during the winter months; after a warm spell with much humidity, the wind suddenly swings into the North or Northwest, the temperature drops to the zero or subzero point and the air becomes dry, this all happening in from twenty-four to thirty-six hours.

Whenever this condition comes about, and it may do so from one to six times each winter, I have each of my patients have the blood pressure taken at least once a day, and it is rare for a patient to be unaffected, either a sudden rise or a fall of from 10 to 30 points. Then I watch the newspapers; the number of cerebral hemorrhages during these spells is appalling.

Secondly, and of equal moment, comes a time during the heated summer months when a hot wave suddenly sweeps the country, the temperatures reaching a high mark. As far as I have been able to determine, the blood pressure effects have been nearly identical with those sudden changes coming on during the winter. I believe that when these weather changes are better understood, and more reliable data than what I have been able to offer on this subject are at hand, we shall warn our patients on the approach of such spells, and by careful watching during these critical times be able to postpone death for several years at least.

EFFECT OF CLIMATE AND ALTITUDE ON ARTERIAL TENSION

The effect of climate and altitude on arterial tension is also of vital importance, mainly because recently many persons who live in the North and who wish to escape some of the rigors of our Northern winters have migrated to Southern latitudes. Along with this winter rush southward, of course, go many patients with chronic cardiovascular-renal disease, and with it varying degrees of arterial hypertension.

Now, as a general thing, we think that such patients will do much better in a warmer than in a colder climate; also that they do better during the summer months than in the winter. Is this strictly true? My records tend to show that more patients come to me suffering from these conditions in the summer than during the winter; also that the arterial tension runs higher during the hot weather than during cold, and that cerebral hemorrhages are more frequent.

During the last fifteen winters I have had an opportunity of observing many such patients who have migrated southward in the hopes of relief from this condition. The results of my investigations in this line, which has included Florida, practically all of the West Indies and portions of Central and South America, would indicate that such patients are much happier in warmer climates, but at the same time arterial tension runs higher and cerebral hemorrhages are more frequent. However, I believe that the change from higher to lower altitudes have perhaps more to do with this condition than the change from a colder to a warmer climate.

Many of my patients who have been living in comparative ease and comfort in cold weather and at an altitude of from 600 to 1,500 feet, with the distressing symptoms reduced to a minimum, will on reaching a warmer winter climate and sea level find all their symptoms returning, only to have them become lessened when they reach home again.

Not all patients show this reaction, but many do, and it is time that this be given more serious thought than it is at present. Those patients, moreover, who do better in warmer climates should be encouraged to go, while those who react badly to low altitudes and warmer

climates should not be sent away from their home physicians in the North without this condition being well understood, and the patients being under the supervision of a Southern physician who will receive the data and report to and cooperate with the home physician.

CONCLUSION

A few things concerning the symptom blood pressure have been discovered and explained. More have been discovered, but as yet are unexplained, and many more are to be discovered before our knowledge regarding this important phenomenon is carried to a point at which we may advance with confidence and a full understanding of our work.

INSULIN AND THE NATURE OF DIABETES MELLITUS

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Few terms employed in medicine have undergone greater changes of meaning than the word diabetes. It appears to have been employed originally simply to denote polyuria; but, after Willis had described the sweet taste of the urine, in 1679, it assumed a fresh significance. Willis does not seem to have suspected that the sweetness was due to the presence of sugar, and more than a hundred years elapsed before this fact was demonstrated by the experiments which Dobson reported in 1779. Although Cullen pointed out in 1791 that the urine passed by patients suffering from polyuria was not always sweet, and was the first observer to append the adjective "mellitus" to diabetes, nearly twenty years passed after Dobson's discovery before diabetes mellitus was finally differentiated from diabetes insipidus by Frank, and nearly fifty ere the decisive importance of glycosuria was established by Gregory in 1825.

For a time, diabetes mellitus and glycosuria were regarded as synonymous, but difficulties arose when Biot showed, in 1856, that healthy nursing women might excrete lactose, and when, in the same year, Ventyke pointed out that some sugar-containing urines were levorotatory. The occurrence of physiologic lactosuria in women was confirmed before long by Kaltenbach (1879) and others, but it was not until 1884 that Seegen differentiated levulosuria. In 1892, Salkowski and Jastrowitch described another variety of reducing sugar in the urine, arabinose, and about the same time F. Voit differentiated galactose, while in 1901 Lépine and Boulud isolated maltose. As a consequence of these discoveries, it was recognized that the presence of a reducing substance in the urine was not pathognomonic of diabetes mellitus, and a new terminology, based on the nature of the sugar excreted, arose. This led to considerable confusion, however; for while it was agreed that lactosuria, levulosuria, pentosuria and maltosuria were to be regarded as separate conditions, the excretion of dextrose was considered by some to be characteristic of diabetes mellitus; whereas others held that a nondiabetic dextrosuria might occur, and reserved the name diabetes for conditions in which other products of defective metabolism were excreted in the urine, and characteristic clinical symptoms were present, although those holding the latter view usually allowed that there was no sharp line of division between simple glycosuria and diabetes. The effect of these differences of opinion was that the term diabetes mellitus lost its definite significance and came to be used by various observers with different meanings.

In recent years, an attempt has been made to clarify the situation by defining diabetes mellitus on a pathologic basis. It is asserted [1] that "clinical diabetes arises regularly on a basis of pancreatitis, acute or chronic," and that glycosurias of nonpancreatic origin are in a class apart, which has no relation to true diabetes. The view that true diabetes is always primarily dependent on disease of the pancreas is founded on three main lines of evidence: 1. Careful histologic examination, with the help of modern staining methods, has shown that morbid changes can be detected in the islands of Langerhans in the large majority of patients dying of diabetes. 2. The characteristic features of the disease can be reproduced in animals by excising the pancreas. 3. The system of treatment evolved by Allen from his experiments with partially depancreatized dogs, and devised to secure physiologic rest for the remnant of the gland, has been found to give more satisfactory results than any previously employed. At first sight, this evidence seems fairly conclusive, but we have to allow for the possibilities that (1) the histologic changes found in the pancreas in fatal cases of diabetes may be a result, instead of the cause, of the disturbed metabolism of the body existing during life, in some instances at least, and (2) a relative pancreatic insufficiency, such as would result from the abnormal activity of some organ or mechanism which is regulated by the internal secretion of the pancreas, might give rise to effects of a similar character to those produced by the absolute deficiency consequent on the excision of portions of the gland; and we must also admit that the physiologic rest secured by abstinence from food and a low diet is not confined to the pancreas, but is shared by all the organs concerned in digestion and assimilation.

Since the discovery of insulin, supporters of the purely pancreatic theory of diabetes have contended that the improvement that usually follows its use is strong evidence in favor of the unity of the conditions, and confirms their view as to its etiology. They appear to forget, however, that Banting [2] showed that injections of insulin prevent and control defects of carbohydrate metabolism arising from other causes besides excision of the pancreas, and also that, clinically, epinephrin and pituitary extract are employed to counteract the effects produced by the introduction of an excess of insulin into the circulation. On the other hand, it is now generally acknowledged that insulin is not the specific cure for diabetes believers in the pancreatic theory originally supposed it would be; a limited recovery of food tolerance may take place, but, in the large majority of cases, the benefit persists only so long as the injections are continued. This has been accounted for by assuming that a permanent deficiency of the internal secretion of the pancreas consequent on degenerative changes in the gland exists in the majority of cases, and this deficiency must be constantly made good by a vicarious supply from without, to enable the tissues to utilize sugar efficiently; but it might be equally well explained on the hypothesis that the injected insulin temporarily augments the control of the internal secretion of the pancreas over glycogenolysis by supplementing the defective supply in cases of pancreatic origin, and by reinforcing the efforts of a

1. Allen, F. M.: Total Dietary Regulations in the Treatment of Diabetes, New York, Rockefeller Institute for Medical Research, 1919, p. 646.
2. Banting, F. G.: Tr. Roy. Soc. Canada, Series 3, **16**, Sect. V, 1922.

healthy pancreas to produce enough of its internal secretion to combat the effect of opposing influences causing an abnormal conversion of glycogen into sugar in cases of other origin.

At the present day, few, if any, will deny that defects in the functions of the pancreas play an important part in the pathology of diabetes; the only question is whether they are the primary and the essential basis on which the disease develops, or whether they may, in some cases at least, be secondary, and supervene in the course of the evolution of the final condition. It is a question of considerable practical importance, as well as of theoretical interest, since on the answer will depend our views of the etiology of diabetes and consequently of the direction toward which efforts must be directed to devise methods of prevention and radical treatment, which are still as necessary as ever. If clinical diabetes invariably arises on a basis of pancreatitis, and the fundamental defect is a consequent inability to utilize carbohydrate, the problem is comparatively simple, and consists in the discovery of the cause of pancreatitis or, at least, of means for diagnosing and effectually treating it in the prediabetic stage; but if diabetes mellitus is a symptom complex characterized by an excessive production of sugar which originates in a variety of ways and develops along converging lines to a common final stage in which all the metabolic functions of the body, including sugar utilization, are more or less disorganized its prevention and radical treatment are likely to be more difficult, and success will obviously depend, in the first instance, on efficient differential diagnosis of the primary factor, or factors, operating in each particular case. Unfortunately, there is no generally accepted indication by which pancreatitis may be diagnosed during life with certainty, so that those who believe in the purely pancreatic origin of diabetes are obliged in practice to regard all dextrosurias associated with hyperglycemia as being due to disease of the pancreas. It is true that, clinically, "diabetic" conditions are empirically differentiated from "nondiabetic" conditions by the shape of the blood sugar curve obtained after a dose of dextrose has been taken by the patient; but there is no evidence that the differences found are dependent on the functional efficiency of the pancreas.

Although the clinical effects of insulin in diabetes do not throw fresh light on its etiology or aid in the differentiation of diabetic from nondiabetic hyperglycemia, the discovery of means by which the hypothetic internal secretion of the pancreas can be separated has rendered it feasible to investigate the rôle of the pancreas in internal carbohydrate metabolism in a way that was previously impossible. One of the earliest observations made with insulin showed that when it is administered, along with carbohydrate, to a depancreatized dog, glycogen is deposited in the liver, the percentage of sugar in the blood falls within the physiologic range, and the respiratory quotient is raised to the same level as that in a normal animal that had received carbohydrate alone. These results have been interpreted as indicating that the function of insulin is in some way related to the preparation of the glucose molecule for condensation into glycogen and for combustion by the tissues.[3] The fact that glycogen is deposited in the liver of a depancreatized animal when the sugar content of the blood is reduced to the physiologic level by insulin injections is incontrovertible. It is open to question, however, whether it is formed by a condensation of sugar from the blood, as the deposition of glycogen under such circumstances might equally well result from the injected insulin interfering with the excessive activity of the glycogenolytic ferment known to be present in the liver, which, it has been shown, passes into the circulation in increasing amounts as the functional efficiency of the pancreas is diminished by the excision of larger proportions of the gland.[4]

The experiments that Mr. Howard and I carried out before the discovery of insulin suggested that the pancreas has some such influence, and the observations we have made since its introduction have tended to confirm that opinion. Our recent work has shown that the amount of sugar formed from soluble starch or glycogen by the isolated diastatic ferment of the liver is reduced by the addition of insulin according to the concentration employed, but that the addition of insulin alone is effective only if the reaction of the medium is acid or neutral; if, however, parathyroid also is added, a similar reduction occurs in the alkaline range and is particularly pronounced at the normal reaction of the blood. It would therefore seem probable that the internal secretion of the parathyroids bears much the same relation to insulin as Langfeldt's [5] experiments showed thyroidin does to epinephrin functioning as an activator at the reaction of the blood; and that this is the case is further suggested by the fact that insulin has been found by Macleod and Noble [6] to have no influence on glycogenolysis or glycogenesis in turtle liver within the blood range, while Winter and Smith [7] have shown that the injection of parathyroid along with insulin into rabbits materially enhances the action of the latter. Seeing that the thyroid-epinephrin combination promotes the breaking down of glycogen into sugar by the diastatic ferment of the liver, and that a combination of parathyroid and insulin has an opposite effect, it is tempting to assume that the rate of glycogenolysis in the liver is determined, in part at least, by the balance existing between the two systems at any particular time.

Evidence in favor of this view is afforded by our experience showing that the activity of the isolated diastatic ferment of the liver can be controlled at will by suitably adjusting the concentration of the added hormones, and also by the observations made by Lyman Nicholls and M'Cann, in which they found that injections of insulin and epinephrin had opposite effects on the blood sugar, the net result of simultaneous injections being the algebraic sum of the two factors. Our experiments have indicated that pituitary extract has no direct influence on the activity of the diastatic ferment of the liver, although it possesses the property of preventing the depressing effect of insulin on glycogenolysis, even in the presence of parathyroid, thus confirming the conclusion arrived at by Burn [8] as a consequence of his observations on injected animals, which suggested that there is an antagonism between the hormone of the posterior lobe of the pituitary gland and insulin, differing fundamentally in its nature from that existing between epinephrin and insulin. The existence of such a direct antagonism is interesting, in view of the relation of the pituitary gland to the central nervous system, and it may possibly account for the absence of glycogen from the latter, and also explain why the brain and liver are provided with a special nervous connection.

3. Macleod, J. J. R.: Lancet **2**: 198 (July 28) 1923.

4. Cammidge, P. J.: New Views on Diabetes Mellitus, 1923.
5. Langfeldt, E.: J. Biol. Chem. **46**: 391 (April) 1921.
6. Macleod, J. J. R., and Noble, E. C.: J. Physiol. **58**: 33 (Oct.) 1923.
7. Winter, L. B., and Smith, W.: J. Physiol. **58**: 108 (Oct.) 1923.
8. Burn, J. H.: J. Physiol. **57**: 318 (June) 1923.

If the internal secretion of the pancreas functions in the body as insulin behaves in vitro and on being injected into animals, it follows, that at least a temporary deficiency of the pancreatic hormone is necessary in order that an abnormal formation of sugar from glycogen should occur in the liver. Such a deficiency may be merely relative, and dependent on an inability of a normal pancreas to produce a sufficiency of its internal secretion to counteract completely the excessive activity of opposing influences promoting glycogenolysis; or it may be absolute, and due to functional or organic defects in the gland. But, without one or the other, abnormal glycogenolysis cannot take place. When either a relative or an absolute deficinecy exists, the degree and duration of the resulting hyperglycemia will be determined very largely by the efficiency of the pancreas, a healthy gland being obviously in a better position to restore the normal balance rapidly and completely than one that is diseased, especially if there are serious organic defects; but, as Allen's experiments with partially depancreatized dogs have demonstrated that an initially mild deficiency may be converted into a serious one by continued feeding with an excess of carbohydrate, and that a similar transition may be brought about by performing puncture of the medulla, that is to say by creating an irritative nervous lesion causing an abnormal conversion of glycogen into sugar, it seems probable that a relative pancreatic deficiency may become absolute in the course of time, and a deficiency that was only functional in the first instance may give rise to organic changes if the metabolic disturbance is allowed to continue unchecked.

Clinical experience lends support to this view, for I have found that when an unselected series of cases was investigated by the analytic methods that I [4] have described elsewhere about 38 per cent. showed evidence of an absolute deficiency of the internal secretion of the pancreas; in 32 per cent. there was a relative deficiency associated with excessive activity of one or the other of the factors known to promote glycogenolysis, while in the remainder there were no indications of any pancreatic defect. When, however, only cases of a severe type were considered, absolute deficiency of the internal secretion of the pancreas was found in more than 80 per cent., although previous examinations in some had revealed merely a relative defect. Conversely, observations on the effect of treatment have demonstrated that an absolute pancreatic deficinecy often becomes relative as the condition of the patient improves, and reverts to its original type if dietetic control is abandoned. In some patients, however, an absolute deficiency persists in spite of suitable treatment, probably owing to there being irreparable damage of the pancreas.

Evidence is not lacking, therefore, that diabetes may possibly arise from other causes than pancreatitis, even if we agree to define diabetes as a condition in which defects of metabolism are associated with insufficiency of the internal secretion of the pancreas. My own view is that disease of the pancreas with absolute deficiency of the internal secretion is the essential cause in the rapidly developing form of diabetes most commonly encountered in young people, but that the more slowly progressing types, especially those seen in the later years of life, in which an intermittent glycosuria becomes persistent and secondary disturbances of metabolism gradually develop, absolute deficiency of the internal secretion is secondary, occurring in the later stages, either as a result of continued relative deficiency or, more rarely, as a consequence of slowly progressing interlobular sclerosis.

The discovery of insulin has aided in the elucidation of another aspect of the problem of diabetes which has been a matter of controversy for years. It has been held by some that the fundamental defect in diabetes is an inability of the tissues to utilize carbohydrate, and that this defect in the normal balance between supply and demand is the cause of the hyperglycemia, whereas others have maintained that an overloading of the blood with sugar, due to excessive production, is the essential factor. Those who have adopted the former view have based their opinion largely on the evidence furnished by observations on the respiratory quotient, which Benedict and Joslin [9] found was lowered as the severity of the disease increased, thus indicating an impairment or loss of power of the organism to utilize sugar. Recently, more direct proof of faulty utilization of sugar by the muscles and general tissues in severe cases has been provided by Lawrence,[10] who showed that the difference between the sugar concentration in the arterial and venous blood of a limb is much less in advanced diabetes than in health; moreover, as he found that the difference increased and approximated to the normal after the administration of insulin, and as other observers have reported a rise in the respiratory quotient, it may be inferred that the loss of power to utilize sugar in such cases is dependent on a deficiency of the internal secretion of the pancreas.

It does not follow, however, that the hyperglycemia is due entirely to the inability of the tissues to make use of the sugar offered them, for, as we have seen, there is experimental evidence that insufficiency of the internal secretion of the pancreas, no matter how it may be caused, results in abnormal glycogenolysis with a consequent increase in the sugar content of the blood. When, therefore, there is an absolute deficiency, such as appears to exist in most, if not all, advanced cases of diabetes, it is probable that the high blood sugar is of dual origin, part arising from overproduction, and part from defective utilization. That this is the case is indicated by the experiments of Cori and Goltz,[11] who found that a diminished output of sugar by the liver into the blood stream, as well as a larger intake of sugar by the muscles, followed insulin injections of animals, showing that the fall in the sugar content of the blood which occurs under these circumstances is dependent on the combined action of insulin on the liver and muscles.

The results of metabolic experiments on which Mr. Howard and I have recently been engaged suggest that the two functions of insulin, as a promoter of glycogenesis and as an activator of sugar utilization by the tissues, are dependent on separate and distinct fractions; for, in a series of observations on guinea-pigs and rats, we found that, although insulin given by the mouth had no effect on the sugar content of the blood or on the respiratory quotient, it was capable of preventing the glycogenolysis caused by epinephrin injected subcutaneously. Such a finding can be most reasonably interpreted on the assumption that insulin is so modified in the alimentary tract, or during absorption, that a fraction on which the utilization of sugar depends is either destroyed or not absorbed, while another fraction possessing antiglycogenolytic properties passes into the circulation unchanged.

9. Benedict and Joslin: Pub. 136, Carnegie Institute of Washington, 1910; Pub. 176, 1912.
10. Lawrence: Brit. M. J. 1: 516, 1924.
11. Cori, J. T., Goltz, H. L., and Cori, C. F.: J. Pharmacol. & Exper. Therap. 22:355 (Dec.) 1923.

My experience has been that an absolute deficiency of the internal secretion of the pancreas is not encountered in many cases that are clinically regarded as diabetes; in a considerable proportion there is only a relative deficiency, the pancreatic hormones being formed apparently to a normal extent, but not in sufficient amount to counteract completely an abnormal stimulus to glycogenolysis. When this condition exists, the ultilization of sugar by the tissues is apparently not interfered with, and the hyperglycemia is entirely due to an excessive formation of sugar from glycogen. If a hard and fast line could be drawn between the two types, and it could be proved that a relative insufficiency never becomes absolute, it might be justifiable to reserve the name diabetes for the condition in which defective utilization as well as overproduction of sugar occurs; but accurate division on these lines appears to be impossible in practice at present, and the evidence available suggests that the one form may merge gradually into the other, so that a case that is initially "nondiabetic" may become "diabetic" later, if the control of the pancreas over sugar production and utilization is weakened by persistent overstrain. In this connection, it is pertinent to recall the data collected some years ago by Barringer and Roper,[12] which showed that the majority of persons with transient glycosuria discovered in the course of examination for life insurance subsequently developed diabetes.

Although the discovery of insulin has carried us nearer a solution of the problem of defective carbohydrate metabolism, and promises to lead to a still better understanding being reached in the future, there is at present too much uncertainty regarding the exact relation of the pancreas to sugar metabolism to warrant dogmatic statements being made or to permit of a precise definition of diabetes which will be universally acceptable. As I have endeavored to show, the evidence at present available suggests that clinical diabetes is not a disease of constant etiology or pathology, but is more probably a symptom complex originating in various ways, all of which, however, eventually give rise to a progressive deficiency of the internal secretions of the pancreas if the primary cause is not removed or controlled. The relative or absolute deficiency that appears to exist in most cases of hyperglycemia when they come under observation, and the specific antiglycogenolytic function of one of the pancreatic hormones, explain why the administration of insulin has been found to have immedite beneficial effects in all cases of diabetes; but it is clear that unless this deficiency is mainly functional, and is not dependent on extrapancreatic causes, no lasting improvement will follow its use. If the treatment of diabetes is to be radical and not merely palliative, the exact conditions obtaining in each case must be determined, and appropriate measures must be taken to deal with them. Such investigations naturally entail a considerable expenditure of time and labor; but my experience has been that it is time and trouble well spent, since much more satisfactory and lasting results can often be secured than when an empiric treatment with insulin or with diet alone, is adopted. In many instances in which insulin injections would otherwise have had to be continued most probably for the remainder of the patient's existence, they have been discontinued, or their use has been altogether avoided, when the primary cause of the defects of carbohydrate metabolism has been discovered and successfully treated.

32 Nottingham Place, Marylebone, W. 1.

12. Barringer and Roper: Am. J. M. Sc. **133**: 842, 1907.

ENTEROSPASM SIMULATING GALL-BLADDER DISEASE

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NEW YORK

Medical literature is full of reports and discussions on the frequency of missed diagnoses of cholelithiasis and cholecystitis. It is only lately that we have learned to recognize gallbladder affections long before the typical syndrome has developed, and every one is eager to report cases that remained unrecognized for a number of years. It is fruitless, however, to search the literature for reported instances in which the diagnosis of gallbladder disease was made, though none existed. This, perhaps, can be explained by the fact that, unless the case comes to the operating table or to necropsy, it is very difficult to disprove that a gallbladder condition was really present.

It used to be a matter of considerable amazement to us to find many more cases of gallstones and definitely pathologic gallbladders in the dissecting room and at necropsy than was ever suspected during life. Today, the frequency of missed diagnoses seems, from published statistics, so appalling that the tendency is now to err in the direction of considering many conditions as gallbladder disease when the diagnosis can be supported only on the flimsiest evidence, or not at all. History repeats itself. We are going through the same experience with regard to our understanding of gallbladder conditions as we did some time ago with the appendix.

The period of wholesale appendectomies, when almost every case of pain and tenderness in the right iliac fossa was considered surgical, is over, and we have learned to differentiate between the real and the spurious pathologic appendix. We have not as yet reached that degree of diagnostic insight with reference to gallbladder conditions. We are so eager to recognize cases of cholelithiasis and chronic cholecystitis in their early stage that we are apt to advise operative intervention in cases in which the diagnosis of gallbladder disease is not sufficiently well founded. Failing to find definite, clear-cut pathologic changes at the operation, we are ready to appease our consciences with such reports of the enthusiastic pathologist, as "thickened wall of the gallbladder" or "somewhat increased amount of connective tissue in the submucosa," and the case goes down in the records as that of chronic cholecystitis, without reference to the question whether the pathologic condition was sufficient to account for the symptoms of which the patient complained, or to warrant operative intervention.

The extent to which intestinal colics may mimic gallbladder disease has been recognized by many observers. In a recent study of a series of cases of gallbladder conditions that came to operation, Meulengracht [1] recognizes the difficulty of differentiating some affections of the colon from those of the gallbladder, and states that intestinal colics can very readily be mistaken for gallstone colic. However, only unrecognized gallbladder cases seem to interest him. Hurst [2] thinks that "in rare cases of acute attacks of enterospasm, the pain may be as severe as that of biliary or renal colic." Fleiner,[3] in

1. Meulengracht, E.: Beitrag zur Differentialdiagnose zwischen Gallensteinkrankheiten und Magen-Darm-Krankheiten, Arch. f. Verdauungskr. **32**: 323 (Feb.) 1924.
2. Hurst, A. F.: Constipation and Allied Intestinal Disorders, Ed. 2, London, Oxford University Press, 1921.
3. Fleiner, W.: Spezielle Pathologie und Therapie innerer Krankheiten, Berlin, Urban & Schwarzenberg **6**, Part 2, p. 213, 1923.

writing of intestinal colics, recognizes the fact that when the colics are localized around the hepatic flexure they may be very easily mistaken for gallstone colic. Kehr [4] also calls attention to the fact that a pathologic condition of the hepatic flexure or proximal transverse colon, causing the formation of adhesions in that quadrant and giving rise to colics, will very often mislead the physician into considering the more common condition of gallstones than the less frequent affections of the omentum and colon.

The causes of enterospasm are numerous, and any one of them giving rise to colics of sufficient intensity may simulate gallbladder disease when the cramps are more marked in the right upper quadrant. According to von Noorden,[5] the most common cause is constipation, especially when drastic cathartics were employed. Vagotonia, spastic ileus, the various kinds of colitis, foreign bodies in the intestine, intestinal parasites, proctitis, hemorrhoids, etc., may be responsible for an acute attack of colic simulating an attack of cholelithiasis. While it is difficult at times to make the diagnosis during the attack, it is often almost impossible to tell with certainty long after the attack, whether or not there is a pathologic gallbladder condition present. The number of cases of latent or quiescent gallbladder disease is so great that it hardly behooves any one to insist on a negative diagnosis, which is impossible to prove. The important point to decide is whether or not the case requires surgical intervention, and that, if decided in the negative, can be readily judged from the subsequent course as to its correctness.

The following four cases from the several that I encountered in the last three years will serve as illustrations. All the patients were advised operation for cholelithiasis or chronic cholecystitis, while the underlying condition, in the light of further study of the case and subsequent course, proved to be due to disturbed intestinal function, giving rise to enterospasm. The nature of the abnormal intestinal function was different in each case.

REPORT OF CASES

Case 1.—R. C., a woman, aged 23, unmarried, was seen by her physician in two attacks of pain in the right upper quadrant, radiating to the right shoulder. The last attack, Sept. 10, 1922, was severe enough to require the administration of a narcotic hypodermically. There were also cramp-like pains in the epigastrium. The attacks had been increasing in frequency and intensity in the last nine or ten months. She was not a good operative risk, having a double mitral and aortic lesion, and it seemed advisable to study the case more thoroughly before deciding on an operation for cholelithiasis. On examination several days after the attack, there was tenderness in the right iliac fossa, with a positive Meltzer sign. There was no tenderness in the right upper quadrant, and the Murphy sign was negative. The roentgen-ray examination of the gastro-intestinal tract by means of a barium meal revealed a marked degree of rectal constipation (dyschesia) with stasis in the cecum and ascending colon. Treatment was instituted to correct the constipation, with the result that, up to the time of this writing, twenty months later, the patient has been perfectly comfortable without having had even a mild attack.

It is true that it is impossible to prove that the patient has no biliary calculi, but this is not the main question that concerns us. It is the necessity for operative intervention that is the most important to consider. With a serious cardiac lesion present, it would be unjust to subject the patient to a major operation when it is possible to free her from symptoms and make her comfortable without recourse to an operation.

Case 2.—J. L., a man, aged 38, a carpenter, had a severe attack of pain in the right hypochondrium, March 2, 1924. The pain did not radiate in any direction, and was throbbing in character. There was no vomiting. The previous history, aside from frequent headaches, partly relieved by cathartics, and occasional heartburn, was essentially negative. Bowel action was regular with the aid of frequent laxatives. Stools were often scybalous in nature. The attending physician made the diagnosis of probable cholelithiasis, and called in a surgeon in consultation. The latter found some costo-vertebral tenderness on the right side, and expressed an opinion that it might be a case of nephrolithiasis, advising at the same time a roentgen-ray examination. As a dose of castor oil taken by the patient before the attack made him very sick and caused vomiting, he was brought in by his physician for roentgenographic study without the usual preparation. The patient's abdomen was very much distended and tender, and fluoroscopic examination showed the colon enormously distended with gas, making roentgenography of the kidneys and gallbladder impossible. A contrast meal was then given for the study of the gastro-intestinal tract, the roentgenographic study of the kidneys being deferred to a later period. The patient felt very bad at that time on account of the abdominal distension. When he reported the next day for the twenty-four hour observation, he was free from all symptoms, having had a good bowel movement that morning. Roentgenologic examination revealed the presence of only a small quantity of barium in the cecum. There was no gas in the colon. Forty-eight hours after eating, the entire colon was free from barium. Roentgenograms of the gallbladder and kidneys were negative. The patient was put on an appropriate diet, advised to refrain from the abuse of cathartics, and has been well since.

The attack in this case was evidently due to an extreme degree of flatulence, which was brought on by the indiscriminate use of cathartics. The patient had too often anticipated a normal bowel evacuation by the administration of a laxative, thus causing an irritation of the colon, with the resultant flatulence. When the degree of gas distention became extreme, an attack of severe pain was precipitated.

Case 3.—M. M., a woman, aged 53, had been treated for over a year for gallstones by the use of medication internally. According to the patient's statement, she was passing stones in the feces all the time. The stones were pointed out to her by her physician in the dried stools, of which she had a sample with her. The minute stones were easily recognized by me as seeds of figs, of which the patient partook freely. The patient's complaints were very indefinite, and not suggestive of anything in particular. There was general abdominal discomfort, belching, insomnia and restlessness. The bowels moved daily, but the feces were hard and dry. The previous history was negative as regards serious ailments. The patient had eight children, and had passed the menopause three years before, though still having hot flushes. She was of the asthenic build, poorly nourished, with a lax, flabby abdomen. The systolic blood pressure was 180; diastolic, 94. The chest showed an increased anteroposterior diameter, with moderate emphysema; otherwise it was normal. Roentgenographic examination of the gastro-intestinal tract by means of an opaque meal revealed an extreme degree of colic constipation, with marked spasticity of the colon. One hundred and twenty hours after eating, the major portion of the barium was still in the colon, in rounded, separate masses, though the patient was reporting daily bowel movements, which were small and scybalous. There was also apparent redundance of the colon.

While in this case neither the history nor the roentgen-ray examination suggested any involvement of the biliary tract, the symptoms on previous occasions

4. Kehr, Hans: Spezielle Pathologie und Therapie innerer Krankheiten, Berlin **6**, Part 3, p. 61, 1923.
5. Schmidt and von Noorden: Klinik der Darmkrankheiten, Ed. 2, Munich, J. F. Bergman, 1921, p. 777.

must have been sufficiently like those of gallbladder disease to warrant the diagnosis of cholelithiasis. The condition of the colon and its abnormal function easily account for the symptoms.

CASE 4.—N. S., a man, aged 26, a painter, had been, for the last three years, having periodic uncontrollable attacks of vomiting two or three times a year, each attack lasting about five or six days, not associated with any pain, and not readily influenced by medication. The attacks were always preceded by a sense of discomfort and nausea for about a week. Bowel action was usually fairly regular, but before and during the attacks the patient was constipated. The first attack occurred in October, 1921. The patient was then examined roentgenologically by means of a contrast meal, but only two observations were made: one immediately after ingestion of the opaque meal, and one twenty-four hours later. The report stated that the appendix seemed adherent to the under surface of the liver. The patient then went to Philadelphia and was operated on by Dr. John B. Deaver, November 1, 1921. Judging by the incision, which was made over the upper right rectus, and according to the patient's statement, there was a suspicion of the gallbladder being involved. However, in answer to my inquiry, Dr. Deaver informed me that there was no upper abdominal pathologic condition found, and that the removed appendix was reported by the pathologist as "chronic interstitial appendicitis." The patient left the hospital in about two weeks, having evidently made an uneventful recovery. The attacks kept on recurring at stated intervals and were the same in character as the first one. The last attack was a very long, intense and exhausting one, though there was no pain or colic.

The patient was well developed and nourished, of sthenic habitus, with an old empyema scar over the left chest (history of empyema at the age of 2 years), a right upper rectus scar, the descending colon contracted and tender. Otherwise, physical examination was negative. Rectal examination revealed the presence of some small scybala in the rectal ampulla. A test breakfast showed free hydrochloric acid, 46; total acidity, 78; mucus, normal amount. The stool examination on Schmidt's test diet was negative except for the consistency of the feces, which were hard, and for an excess of mucus. The erythrocytes showed no stippling, nor was there any other evidence of lead intoxication.

Roentgen-ray study by means of a contrast meal showed: a markedly spastic duodenal cap, which, however, could be filled out with counterpressure under the fluoroscope; a six-hour gastric residue of about one quarter of the original meal; a very low cecum, and colic constipation with marked spasticity of the entire colon. The patient had a bowel movement during the first twenty-four hours after the barium meal (he had had a cathartic the day before on his own accord), but no stool in the four days following, at the end of which period he began to vomit again; this was checked by an aperient and a few doses of belladonna.

The symptoms, in the patient's opinion, were the same after the operation as they had been before he was operated on; yet there must have been something in the history of the case or in the physical findings at that time that was highly suggestive of gallbladder disease, as is evident from the high rectus incision. The gallbladder, as well as the other organs in the upper abdomen, were found normal. While the symptoms at the time the patient was seen by me did not in any way point to the gallbladder, at other times, owing to colonic spasm, some gas might have been trapped in the hepatic flexure, and it is easy to conceive how the condition could mimic an attack of cholelithiasis.

SUMMARY

Enterospasm occurs quite frequently in various intestinal disorders.

Under certain conditions, enterospasm may be easily mistaken for gallbladder disease.

While our attention is repeatedly called to failures in diagnosing gallbladder disease early, there is surprisingly little in the literature as to the possibility of colonic spasm simulating cholelithiasis or chronic cholecystitis.

The four cases cited were of abnormal colonic function, each of which was diagnosed as possible cholecystitis or cholelithiasis, one of the patients having been operated on with negative findings.

Though it is difficult, if not impossible, to prove that no gallbladder condition is present in the first three cases cited, nevertheless the subsequent course warrants the assumption that the condition in the colon was responsible for the symptoms. At any rate, there could be no justification for operative intervention in the face of subsidence of the symptoms, and the patients remaining well under conservative treatment.

320 West End Avenue.

Clinical Notes, Suggestions, and New Instruments

MEMBRANOUS DYSMENORRHEA AS A SYMPTOM OF DIABETES

ROBERT D. SPENCER, M.D., ASHLAND, PA.
Pathologist, Ashland State Hospital

The etiology of membranous dysmenorrhea is obscure. It has been found as a complication of certain pelvic diseases, and it has developed after an attack of one of the exanthems. Whenever it has been observed, marked nutritive changes seem to be closely related to the production of this rare condition.

The case reported here illustrates a metabolic disease, apparently the etiologic factor.

Mrs. E., aged 40, came to the Ashland State Hospital, May 14, 1924, her chief complaint being the passing of a fleshy mass at menstruation, which she had been observing for the past year. The fleshlike mass escaped about the seventh day of her periods, which were quite regular. She also complained of a great loss in weight, and frequent urgent urination. Examination of the blood showed the sugar content to be 0.25 mg. The urine also contained sugar. The patient was placed on a diet, and in a week was sugar free. Since she has been sugar free, she has had no menstrual trouble.

The mass passed at menstruation appeared to be a complete cast of the endometrium. Microscopic examination showed the general structure of the endometrium; but the cells did not stain well, and showed other evidences of necrosis. No evidence of inflammation could be observed.

The fact that, on physical examination of the patient, no evidence of pelvic disease could be detected, and that the menstrual trouble ceased as soon as the patient was sugar free, would certainly indicate that in this case diabetes mellitus was an important factor in the production of membranous dysmenorrhea.

DIABETES MELLITUS COMPLICATED BY LIPEMIA RETINALIS AND XANTHOMA DIABETICORUM

SAMUEL A. D. MACHLIS, M.D., CHICAGO

This case is of interest not only as an instance of severe diabetes which responded excellently to therapy, but also of two relatively rare complications; namely, lipemia retinalis and xanthoma diabeticorum. Thirty-one cases of lipemia retinalis have been reported; the thirty-first was reported last year by Muskat[1] at this hospital. Eighty-one cases of xanthoma diabeticorum have been reported. The present case adds one instance to each series.

1. Muskat, I. I.: Lipemia Retinalis, Am. J. Ophth. 7: 288 (April) 1924.

A white man, aged 24, was brought into the ward in the service of Drs. Loeb and Kerr, in deep coma, with air hunger, pinched features, and a powerful acetone odor to the breath. The physical examination was grossly negative except that ophthalmoscopy showed normal disks in both eyes, but with the retinal vessels pure, shining white. There was a faint apical, systolic blow, poorly transmitted toward the axilla, but no cardiac enlargement was demonstrable. The ankles were slightly edematous. On the flexor surfaces of the legs, especially about the knees, on the flexor surfaces of the arms, especially about the elbows, and in the groins were numerous yellow discrete papules, from 0.5 to 2 mm. in diameter, with red bases. There was some tendency to scaling in many. The lesions were not pustular; pressure caused temporary pallor. Abrasion of lesions was followed by relatively profuse bleeding.

One drop of urine reduced 1 c.c. of Haines' solution, and both acetone and diacetic acid were strongly present. In 100 c.c. of blood there were 475 mg. of sugar. Microscopic examination of a resected skin lesion showed typical xanthoma diabeticorum.

A clinical diagnosis of diabetes mellitus with lipemia retinalis and xanthoma diabeticorum was made. Under intensive insulin-glucose-alkaline therapy, the patient rapidly recovered from coma, and, as soon as possible, he was given food in calculated amounts; appropriate hypodermic administration of insulin was continued. The lipemia retinalis disappeared, coincidentally with a full return of vision, although the patient was virtually amaurotic even when he came out of coma. The skin lesions gradually disappeared in a month, leaving rosy macules in their place. The patient left the hospital in good systemic condition.

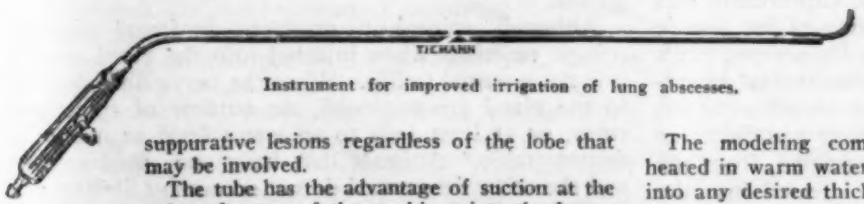
Cook County Hospital.

INSTRUMENT FOR IMPROVED IRRIGATION OF LUNG ABSCESSES, WITH ESPECIAL REFERENCE TO UPPER LOBE ABSCESS*

M. C. MYERSON, M.D., BROOKLYN

Until Clerf brought out his modification of Lynah's spring tube for the irrigation of upper lobe suppurations, these lesions were practically ignored by the bronchoscopist.

The tube that I am presenting was perfected at the time that the Clerf tube was announced. It has proved very satisfactory. I have adapted the Lynah tube to the Yankauer suction irrigation tube, and as a result have a tube that can be inserted not only into the upper lobe bronchus, but also into any branch bronchus from which pus may be found exuding. In other words, this tube can be used for all suppurative lesions regardless of the lobe that may be involved.



Instrument for improved irrigation of lung abscesses.

The tube has the advantage of suction at the point of entry of the washings into the larger bronchial element. This is not attainable with the suction bronchoscope and a single irrigating tube. Therefore, we can feel that our irrigation is more thorough.

The spiral end, which is straight while inside the bronchoscope, becomes curved on its emergence from the distal end. When free, the spring end points in a definite direction and assumes a direction at an angle of 90 degrees from the shaft of the instrument. Because the spring end is flexible and nonresistant, by proper guidance it can be readily introduced into any branch bronchus that can be seen through the bronchoscope. It can be guided into the upper lobe bronchus with ease and safety, either with or without the aid of direct vision. Because the spring end attachment is flexible and nonresistant, the instrument is ideal for the removal and clearing away of granulations that may be obstructing a bronchial element. In this respect it is safer and far superior to any instrument that I have formerly used for the same purpose. This also eliminates the necessity for extra instrumentation.

The tube is made of sufficient length so that it can be used with the 45 cm. bronchoscope or any shorter tube available. The aspirating tube, which is, of course, larger, has superimposed on it and sunken into it the smaller irrigating tube, on the extreme end of which is attached a spring tube 1.5 mm. in diameter and 3 cm. long. The aspiration tube ends at the point at which the spring tube is attached, so that in irrigating only the spring attachment enters into or near the cavity, while the aspirating tube is either within the branch bronchus or at its opening into the main bronchus.

The handle has the irrigator tip at its side and the aspirator tip at the extreme end. The aspirator tip is connected with any suitable suction apparatus. The irrigation is carried out with the aid of a large glass syringe, which is connected to the irrigator tip by means of a small piece of rubber tubing.

In presenting this instrument, I claim credit only for combining the ideas of those two pioneers in lung abscess irrigation, Yankauer and Lynah. The tube comes in two sizes.

198 Lincoln Place.

* From the Department of Laryngology, Kings County Hospital, Service of Dr. Hubert Arrowsmith.

† Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

A PROTECTIVE METHOD OF APPLYING RADIUM IN THE CERVIX

W. J. WOOLSTON, M.D., AND R. C. CRAIN, M.D., CHICAGO

Radium is applied to the cervix in one of three ways: (1) in a screened capsule in the cervical canal; (2) in a screened capsule in the cervical canal, with a second container crosswise resting against the vaginal surface of the cervix for "cross-fire"; (3) by embedding needles (emanation or element) into the cervical tissue.

The important detail is the screening of the vagina, bladder and rectum, so that the operator may feel reasonably assured that in those cases in which a heavy dosage is required there will be no damage done to the neighboring structures.

With this idea in mind, we experimented with several substances, and finally chose dental impression compound. This is molded into the form of a hollow cone and made to fit snugly over the cervix in such a manner that the margins of the cone completely fill the fornices of the vagina; thus, it acts not only as a screen but also as a mechanical barrier, which pushes away the vaginal walls. A hole is made in the apex of the cone through which the braided silk is drawn, the proximal end being attached to the radium container or needles and the distal end strapped over the pubis with adhesive plaster. After it is in place, the vagina is packed with gauze and a pad and binder are applied.

The modeling compound has these advantages: When heated in warm water, it is pliable and can be easily molded into any desired thickness or shape. It will harden quickly on cooling. It is of sufficient density to absorb the radiation. It forms a protecting cap over the cervix, thus making sure that the radium cannot become displaced. It is not hard to introduce or remove.

25 East Washington Street.

A New Method for Permanent Identification of Blood Smears.—After the blood smear has been made, the corner of another slide is used to inscribe the name of the patient literally "in his own blood"; this leaves a clear, unstained inscription after the slide takes the dye. I have used the same method for gonorrhea smears and sputum smears. It may, in fact, be used whenever the smear is extensive enough on the slide to permit the name or initials of the patient to be written on it.—MORRIS H. KAHN, M.D., 140 West Sixty-Ninth Street, New York.

Special Article

GLANDULAR THERAPY

PHYSIOLOGY OF THE SUPRARENAL GLANDS *

D. R. HOOKER, M.D.
ROLAND PARK, MD.

The suprarenals are among the glands of internal secretion which, in the higher forms, are essential to life. In man, these bodies weigh about 4 gm. each. They are innervated by way of the splanchnics, and exhibit one of the few instances of true secretory nerve fibers. They possess a rich blood supply, receiving more blood per gram-minute than any other tissues of the body.

STRUCTURE

The gland substance is divided both morphologically and functionally into cortical and medullary zones, having distinct embryologic origins. The cortex corresponds to the interrenal bodies, and the medulla to the chromaphil bodies or paraganglions of lower forms. In the mammal, the chief masses of these distinct tissue structures become fused to form the suprarenals, although bits of each type of tissue are recognized as occurring normally outside the glands. These scattered masses function as does the fused tissue, although less powerfully, and they are regarded as adequate to explain the divergent results which follow ablation of the glands in different species. This is especially true of the chromaphil tissue, so called because of the characteristic color reaction obtained with chromates. The paraganglions, lying adjacent to the ganglions of the sympathetic chain, yield the chromaffin reaction, and both in structure and pharmacologically are identified with the medullary substance of the gland (Macleod). Gaskell has advanced the interesting hypothesis that these bodies, including the cells of the suprarenal medulla, were phylogenically once a part of the sympathetic nervous system.

FUNCTIONAL SIGNIFICANCE

The functional significance of the suprarenals was first recognized in Addison's description of the disease which bears his name (1855), and in Brown-Séquard's demonstration (1856) that their ablation is incompatible with life. Active study of the problem did not begin, however, until 1895, when Oliver and Schaefer showed that a substance may be extracted from the medulla of the glands which, when injected into the blood stream, exerts a profound physiologic effect, especially on the circulatory system. Minute quantities of the substance are capable of producing an enormous but transitory elevation of the arterial blood pressure.

EPINEPHRIN

Epinephrin has since been isolated from the suprarenal medulla, purified and, finally, synthesized. The credit for much of the earlier and fundamental chemical study of this pressor substance is due to Abel, who called it epinephrin. When injected into the blood stream, it has a selective action for smooth muscle, in the blood vessels and visceral organs, which is innervated by the sympathetic autonomic nerve fibers (Langley). This action is specifically on the myoneural junction (Elliott). There is some evidence that it may act on the nerve centers of the medulla and on the sympathetic and dorsal root ganglions (Hartman). Its exhibition also results in mobilization of blood sugar, presumably by some action on the liver.

DISCHARGE OF EPINEPHRIN

The discharge of epinephrin into the blood stream is wholly dependent on activation of the secretory nerve fibers to the gland. Probably the multifarious stimuli falling on and arising in the body reflexly activate the secretory mechanism so that there is a slow but continuous discharge from the gland. Epinephrin, however, disappears readily from the circulating blood, so that, at least under normal conditions, little trace of it can be found in the peripheral blood, perhaps less than one part in one million.

It is of importance in physiologic investigation to be able to determine the presence and amount of epinephrin in the blood. For this purpose a number of methods have been devised, the most delicate of which is the intestinal (or uterus) strip method developed independently by Hoskins and Stewart, with which, in the hands of experienced workers, minute traces may be detected. A rhythmically beating intestinal strip (rabbit) is set up in oxygenated Ringer's solution. The effect produced on the tracing when the test blood is substituted for the Ringer's solution is then reproduced by adding known quantities of epinephrin to the Ringer's solution, which gives the data for estimating the epinephrin content of the test blood.

Stewart and Rogoff supplemented this method by auto-assay methods, so called because the blood is not withdrawn but its content of epinephrin estimated by reactions elicited in the experimental animal itself.

These methods, in the hands of Stewart and Rogoff and others, have yielded very valuable results. The average output in cats is 0.00025 mg. per kilogram per minute, and in dogs, 0.00022 mg. Stewart and Rogoff lay great emphasis on such quantitative determinations, claiming that the output of epinephrin is a constant factor and that the concentration of epinephrin in the blood depends wholly on the rate of blood flow through the glands.

Although epinephrin produces profound pharmacologic reactions when injected into the blood stream, it is not essential to life. When the nerve fibers leading to the gland are sectioned, the outflow of epinephrin stops, or at least falls to so low a level as not to be demonstrable. Animals that have one gland excised and the other denervated do not succumb (Stewart and Rogoff). Similarly, Wheeler and Vincent have found that animals survive the operative removal of all the medullary tissue in both glands by removal of one, amputation of half of the other, and cauterization of the medulla of the remaining half.

CORTEX

Little is known definitely about the physiology of the suprarenal cortex except that it is essential to life. Biedl has shown that the removal of the interrenal bodies in fishes (in which the two glandular components are not fused) produces symptoms analogous to those which follow complete removal of the glands in mammals. Furthermore, the experiments of Stewart and Rogoff and of Wheeler and Vincent just mentioned, showing that the medulla is not essential, imply, since

* This is the sixth of a series of articles prepared under the auspices of the Council on Pharmacy and Chemistry. When completed, the series will be published in pamphlet form.

excision of the whole gland is fatal, that the cortical substance is alone essential to life.

There appears to be some relationship of the cortical substance to the reproductive system and to growth. Certain clinical manifestations of sexual precocity have been ascribed to an overfunction of the cortex. In the realm of growth, the evidence of a relationship is still stronger. M. M. and E. R. Hoskins found that feeding suprarenal gland to young rats resulted in a more rapid development of the gonads than occured in the controls, and Elliott and Tuckett and Verdozzi showed that the suprarenals hypertrophy during pregnancy and lactation. Similarly, Elliott and Tuckett have shown that in the development of an individual the cortex grows rapidly, while there is little change in the medulla, and that the size of the cortex and not the medulla bears a direct relationship to the mass of skeletal musculature in different mammals.

It has also been suggested that the cortical tissue may elaborate an unknown internal secretion, that it produces a lipoid element essential to all cellular structures, and that it neutralizes certain toxins. None of these suggestions have stimulated any productive research or found any clinical support up to the present time.

THEORIES OF FUNCTION

The older observers assumed that the function of the suprarenals was to detoxify the circulating blood of injurious products of metabolism. This theory has never been proved or disproved, but it is not given much consideration today.

The extreme muscular and circulatory asthenia simulating the symptoms of Addison's disease, developed in animals deprived of the suprarenals, led Oliver and Schaefer to propose the tonus theory, with which their results from the injection of suprarenal extracts were in nice agreement. According to this theory, the glands continuously discharge into the blood stream a substance that is essential for the maintenance of normal vascular tone. As advocated by Biedl, Elliott and others, the glandular output maintains the sympathetic nerve endings in a state of responsiveness to nervous stimulation or in a condition of tonic activity. Quite recent work, however, has undermined this theory, because (*a*) epinephrin in minimal effective doses actually relaxes the blood vessels (Cannon and Lyman, Hoskins and McClure) instead of sustaining their tone; (*b*) ablation of the glands does not for some time result in a fall of arterial pressure (Lewandowsky, Cannus and Langlois, Hoskins and Wheelon), a result that we should expect if a continuous secretion mediated the maintenance of vascular tone; (*c*) splanchnic stimulation effects the same rise in blood pressure after removal of the suprarenals as before (Gley and Quinquad), and (*d*) after ablation of the glands, the exhibition of epinephrin will not sustain life, although temporary benefit may result (Hoskins and Rowley).

We are left, then, with no all-embracing theory of suprarenal function. The functional independence of cortex and medulla clearly points to the impossibility of such a theory. The outstanding hypothesis of suprarenal activity today deals only with the medullary substance. This is Cannon's theory of the emergency function of the medulla. According to this conception, the neurosecretory mechanism is thrown into activity in time of nervous and bodily stress, with a resultant outpouring of epinephrin which serves to facilitate the requisite reactions to such stress. Thus, the blood pressure rises, the blood is shunted to the brain and muscles, and muscular contraction is made more efficient. Animated controversy over the basic experimental evidence on which the theory rests is still going forward, and it cannot therefore be unqualifiedly accepted.

RESPONSE TO CHANGES ELSEWHERE IN BODY

The suprarenals exhibit changes of various sorts following systemic disturbances such as poisoning, excessive fatigue, starvation and dietary upsets, but they are of pathologic rather than physiologic significance at present. Changes also occur in the glands coincident with abnormalities in the other glands of internal secretion, but these changes likewise lack physiologic significance in the present state of our knowledge.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

DIPTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1924, p. 335).

Lederle Antitoxin Laboratories, New York.

Schick Test.—(See New and Nonofficial Remedies, 1924, p. 336.) Also marketed in packages of one vial containing diphtheria toxin sufficient for 50 tests; in packages of one vial containing diphtheria toxin sufficient for 100 tests. Each package is accompanied by the required amount of sterile diluent.

ANTIDYSENTERIC SERUM (See New and Nonofficial Remedies, 1924, p. 301).

Parke, Davis & Company, Detroit.

Antidysenteric Serum.—(See New and Nonofficial Remedies, 1924, p. 302.) Also marketed in packages of one syringe *(Bio. 123)* containing 20 Cc.

BARBITAL (See New and Nonofficial Remedies, 1924, p. 62).

Barbital-Merck.—A brand of barbital-N. N. R.

Merck and Company, New York, distributor. No U. S. patent or trademark.

BARBITAL SODIUM (See New and Nonofficial Remedies, 1924, p. 63).

Barbital Sodium-Merck.—A brand of barbital sodium-N. N. R.

Merck and Company, New York, distributor. No U. S. patent or trademark.

CARBON TETRACHLORIDE MEDICINAL (See New and Nonofficial Remedies, 1924, p. 84).

Carbon Tetrachloride-Merck Highest Purity "C. P."—A brand of carbon tetrachloride medicinal-N. N. R.

Merck and Company, New York, distributor. No U. S. patent or trademark.

CARGENTOS (Formerly marketed as cargentos [new process], see New and Nonofficial Remedies, 1924, p. 343).

The following dosage forms have been accepted:

Cargentos Ointment, 5 Per Cent.—Ointment of Colloidal Silver Oxide-Mulford, 5 Per Cent.: Cargentos, 1 part; anhydrous wool fat, 19 parts; put up in collapsible tubes.

Cargentos Capsules, 3 grains.—Capsules of Colloidal Silver Oxide-Mulford, 3 grains.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1924, p. 298).

H. K. Mulford Company, Philadelphia.

Diphtheria Toxin-Antitoxin Mixture, New Formula (Park-Banshaf's 0.1L + Dose).—Each Cc. of the mixture constitutes a single dose containing 0.1 lethal dose (1/10 L +) of toxin properly neutralized with the necessary amount of diphtheria antitoxin marketed in packages of three 1 Cc. vials (*M 72-253*) representing one immunizing treatment; in packages of thirty 1 Cc. vials (*M 72-255*) representing ten immunizing treatments; also in packages of one 30 Cc. vial (*M 72-73*) representing three immunizing treatments of three doses each.

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SATURDAY, NOVEMBER 1, 1924

TEMPERATURE AND PROTEIN INTAKE

From statistical records of the actual food consumption by presumably normal persons subsisting on a mixed diet, the Munich physiologist Voit computed his figures regarding the standard protein requirement of man. The outcome, represented by an intake of 118 gm. of protein daily for the man not engaged in heavy labor, and 90 gm. for the "average" woman, remained for many years as the unchallenged guide in the study of nutrition. The data from which Voit's computations were made were comparatively limited in number, as they were derived from limited groups of persons. Not long ago, Pearl[1] of the Johns Hopkins University essayed an estimate on the basis of the available statistics of the nation's food supply and its distribution, in order to arrive at a per capita figure for the actual nutritional intake of the population as a whole. Pearl alleges that the theory of "random sampling," such as the earlier physiologists employed in their studies on small, selected groups, makes it clear that any considerable inference from dietary studies, as they have been carried on, to the whole population rests on an exceedingly dubious foundation. Yet his own estimates, aiming to give an idea of what is taking place in the population as a whole, were surprisingly close to the conventional "standard" of Voit and his followers. After applying the estimated percentage deductions for edible wastage to the per capita average, Pearl obtained the following results for ingested human food, for one man, daily: 114 gm. of protein, 127 gm. of fat, and 433 gm. of carbohydrate, totaling 3,424 calories. These figures, Pearl believes, are probably close to the fact as regards protein and carbohydrate. They are probably somewhat too high still as regards fat, because the edible wastage of this component is higher than the 25 per cent. used in estimating it. Dietary studies made in eleven groups of 116 American families by the U. S. Department of Agriculture have shown a protein consumption ranging from 81 to 109 gm. per man daily, with an average of 95 gm.

In striking contrast to such findings are the carefully compiled facts regarding the minimal protein requirement for maintenance, secured by actual metabolism investigations on man. Sherman[2] of Columbia University has recorded an indicated requirement of 0.63 gm. of protein per kilogram of body weight, or 44 gm. per "average man" of 70 kg., daily. Of course, it would be folly to argue that the minimum sufficing for maintenance represents the optimum for nutrition. The importance of some additional quota to provide the admittedly desirable "factor for safety" cannot be denied. But the extremes cited—the statistics of Pearl, on the one hand, and the findings of Sherman, on the other—are widely divergent and give opportunity for the advocates of lowered protein intake to press their claims.

One is here brought face to face with the problem of what determines the protein intake of the individual person in contrast with the group. To some degree, the requirement may be modified by the total energy need and intake, in addition to the influence of growth in the young. Taylor has observed that the customary dietary of different races has in no small degree been fashioned by their ethnologic development. In some lands, he states, races were compelled to adopt cultivation of the soil, in other places, fishing; in some areas the chase remained, long into relative civilization, one of the chief methods of securing food. The variations in ethnologic development brought about by enforced cultivation of the soil, as contrasted with the state of affairs in a tribe of hunters, are well illustrated in different tribes of our American Indians. Depending on the method of sustaining the life of the tribe, the standard diet of the tribe varied. Only under modern conditions of transportation have the instincts and tastes of man had opportunity for full choice in diet. Compulsion to some extent and in some degree there has always been.

Lusk[3] has reminded us that protein has one property out of all proportion to that possessed by the other foodstuffs: it very largely increases the production of heat in the body. Persons maintained on a low protein diet may suffer intensely from the cold. A good piece of beefsteak or roast beef, Lusk asserts, will put the heat production on a higher level, and a person going outdoors on a cold day after a meal high in protein does not feel the cold. For the same reason, on a hot summer day, meat will be avoided. This widespread impression seems to be borne out by observations made in New Orleans by Denis and Borgstrom.[4] They have recorded the urinary output of nitrogen for many Southern med-

1. Pearl, Raymond: The Nation's Food, Philadelphia, W. B. Saunders Company, 1920.

2. Sherman, H. C.; Gillett, L. H., and Osterberg, E.: Protein Requirement of Maintenance in Man and the Nutritive Efficiency of Bread Protein, J. Biol. Chem. **41**: 97 (Jan.) 1920.

3. Lusk, Graham: The Fundamental Basis of Nutrition, New Haven, Yale University Press, 1923.

4. Denis, W., and Borgstrom, P.: A Study of the Effect of Temperature on Protein Intake, J. Biol. Chem. **61**: 109 (Aug.) 1924.

ical students as an index of their protein metabolism and intake. Allowing an additional 10 per cent. for loss through the feces, the data from more than 200 males indicate an average daily consumption of 73.8 gm. of protein, an amount distinctly below the average protein intake (121 gm.) recorded for inhabitants of the United States. The suggestion is made that this lowered protein intake may be due to the warm climate in which these subjects were living, as it was noted that the average nitrogen of the urines collected during the cold weather of February and March was noticeably higher than in those collected during April and July. The results obtained furnish evidence in favor of the view that increase of temperature is accompanied by a decrease in protein intake, and that, apart from the variations due to seasonal changes, the inhabitants of the semitropical portions of this country probably consume an amount of protein considerably below the quantity reported as the average intake for the nation.

THE PARATHYROIDS AND TOXEMIA

In a recent issue of THE JOURNAL [1] reference was made to the now indisputable relation of calcium to the symptoms that are observed after removal of the parathyroid glands. The tetany that ensues is accompanied by a lowered content of calcium in the blood; and the procedures that are successful in combating or averting the untoward manifestations of muscular irritability involve the possibility of restoring in some measure the calcium content to its normal level. There has also long been an impression on the part of certain investigators that tetany is the expression of the effect of toxins of either exogenous or endogenous origin. Various chemical products, such as ammonia, guanidin derivatives, amins, creatin and creatinin, have been designated from time to time as the noxious agents. A recent examination by Swingle and Nicholas [2] of the claims filed against these substances has failed to substantiate the production of symptoms comparable to those of parathyroid tetany by means of injections or other modes of administration of the itemized substances into normal animals. It is, of course, possible that animals which have undergone a parathyroidectomy and which exhibit signs of parathyroid insufficiency may be acted on more readily by these or other substances. Swingle and Nicholas remind us that the evidence seems to point, in nearly all biologic groups, to a lowering of resistance after parathyroidectomy, not only to specific poisons but also to infections. Nevertheless, it seems too early to incriminate any definite toxic product in connection with tetany.

The disastrous effect of a meat diet after parathyroidectomy in animals has been one of the features that have kept attention centered on the possibility that toxic products of gastro-intestinal origin are responsible for the marked depression or convulsive deaths of such animals. It has been observed that there may be a sudden onset and great severity of tetany in parathyroidectomized pregnant animals; likewise, a recurrence of tetany in partially parathyroidectomized animals during estruation, pregnancy and lactation. It has been emphasized that to those investigators who postulate an etiologic relationship between a decreased calcium content of the blood and tetany it would appear likely that such conditions as pregnancy and lactation, in which there is a drain on the maternal calcium, would induce or aggravate tetany. But such an explanation can scarcely apply to the tetany associated with estruation or its analogue, menstruation. Clinicians are aware that menstruation may transform a latent idiopathic tetany into active form. May there not be a positive toxic factor as well as one involving calcium deprivation? If the possibility is admitted, especially in view of the demonstration that deficiency of blood calcium by no means always occurs in pregnancy even when tetany has manifested itself, an etiologic relationship between parathyroid deficiency and the various toxemias of pregnancy becomes more plausible.

Dragstedt and his co-workers [3] at the Northwestern University Medical School have indicated, in this connection, the close relationship between eclampsia and the toxemia occurring during pregnancy in the parathyroidectomized dog. Both in the latter and in man there is evidence for the existence of a toxemia arising from the pregnant uterus and caused by toxic protein derivatives. Both diseases are characterized by the appearance of tonic and clonic convulsions, usually during the latter part of pregnancy or immediately after delivery. Both disorders are relieved by emptying the uterus. Some critics might aver that it is a far cry from parathyroid tetany to eclampsia; but the Northwestern University physiologists [3] have found that, in the dog, through removal of the parathyroids a toxemia develops that most often produces tetany but which may in many cases cause profound depression, a gradual cachexia associated with anorexia and diarrhea, or a marked ataxia and stupor without tetany. It is therefore not logical, they add, to say that eclampsia does not represent a functional parathyroid deficiency simply because it is possible to differentiate by clinical signs eclampsia from typical tetany. A relative or absolute parathyroid deficiency in the dog renders it liable to toxemia during pregnancy, which usually manifests itself as tetany but may produce other nervous or constitutional symptoms. Every new angle from which to view the tantalizing problem of eclampsia will be welcomed, whatever the ultimate outcome of the observations may be.

1. The Calcium Factor in Tetany, editorial, J. A. M. A. **83**: 1081 (Oct. 4) 1924.
2. Swingle, W. W., and Nicholas, J. S.: The Effect of Chemical Compounds on the Production of the Tetany Syndrome, Am. J. Physiol. **69**: 455 (Aug.) 1924.
3. Dragstedt, L. R.; Sudan, A. C., and Phillips, K.: Studies on the Pathogenesis of Tetany, IV, The Tetany of Oestrus, Pregnancy and Lactation, Am. J. Physiol. **69**: 477 (Aug.) 1924.

SOME FEATURES OF HEATED MILK

How to render milk "safe" for human consumption, particularly with respect to the possible dangers of bacterial contamination, has in recent years been a perplexing problem for both the consumer of the product and the dairy industry. That milk should be free from any chance of causing disease is a thesis no longer requiring any argument in its support. Milk-borne maladies have become increasingly familiar along with the development of epidemiology. Aside from the danger of disease presented by bacteria in milk, it must be recalled that the keeping qualities of the fluid are also involved by the development of micro-organisms, thus affording an added compelling reason for vigorous sanitary control. Milk can be made "safe" in two ways: through rigorous prevention of all possible contamination by those handling milk and by proper care of the cow, and through procedures for the destruction of pathogenic bacteria. In practice, this involves the application of heat.

The production of certified milk entails so much expense as to preclude its employment for ordinary use. Consequently, the U. S. Food Administration during the World War authorized the statement that "pasteurization is a necessary safeguard for the general food supply."[1] Pasteurized milk has been the subject of not a little criticism in the past because of the discovery that some of the "biologic" properties of the mammary secretion are impaired by even brief periods of heating at the comparatively low temperatures required to destroy most of the pathogenic bacteria. The recognition of the decrease in antiscorbutic potency has been an outstanding discovery, and much credit is due to those who first insisted on the use of supplementary foods, such as orange juice, to safeguard the health of children that depend on pasteurized milk as a preponderating component of their diet. It has necessitated considerable propaganda to advocate means for making pasteurized milk "safe" for those largely dependent on it as a basis of their nutrition.

Even today, however, there remains a persistent group of critics of the use of pasteurized milk in infant feeding. They deplore the loss of vaguely defined desirable properties which, it is asserted, only untreated milk retains. A possible justification for such assumptions may be found in the studies of Daniels and Stearns[2] of the Child Welfare Research Station at Iowa City on the use of pasteurized milk in infant feeding. These workers allege that the method of heating the milk materially influences the availability of the calcium and phosphorus of the feeding mixture. Pasteurization may be the best method of making milk more nearly safe for infant feeding, although this has recently been questioned; but such heat-treated milk, they state, does not seem to be the most satisfactory from the standpoint of fulfilling the physiologic needs of the baby. In certain instances, babies that were merely maintaining their weight on given milk mixtures when pasteurized by the "hold" method gained when the mixtures were quickly boiled, no other change being made.

One reason for the differences in the nutritive effect associated with different modes of sterilizing milk may be found in the fact that, during the process of heating, the calcium salts are thrown more or less out of solution and thus made less readily available. Animal experiments with milks heated in various ways form the basis for such an assumption.[3] In any event, in the Iowa observations, the calcium and phosphorus retention in infants fed quickly boiled milk mixtures was considerably greater than it was when the milk mixtures were pasteurized. The fecal calcium and phosphorus were greater during the period when pasteurized milk feedings were given, indicating that the longer heat treatment of milk results in a decrease in the availability of the phosphorus and calcium in the milk mixtures.

The favorable experience in infant feeding involving the use of pasteurized milk is too extensive to warrant offhand condemnation of a widely established practice. Nevertheless, it is eminently important to consider every criticism of a procedure with which the health of the nation is so closely bound. Partisanship prejudices and industrial preferences must not be permitted to obscure the issues. Quickly boiled milk has had its advocates both here and abroad. Perhaps they will reassert themselves with renewed vigor. There are also methods of destroying bacteria without the use of heat. Let us remain alert for further information. The child needs not merely safe milk but wholesome milk; when possible, the best milk.

1. Food and the War, U. S. Food Administration, Boston, Houghton, Mifflin Company, 1918, p. 190.
2. Daniels, Amy L., and Stearns, Genevieve: The Effect of Heat Treatment of Milk Feedings on the Mineral Metabolism of Infants, J. Biol. Chem. **61**: 225 (Aug.) 1924.
3. Daniels, Amy L., and Loughlin, R.: J. Biol. Chem. **44**: 381 (Nov.) 1920.

Current Comment

RAW CLAIMS FOR RAW FOODS

During the last few years, various metropolitan centers have been regaled by a series of alleged health lectures staged by one Dr. St. Louis Estes. Estes, who is not a physician, but seems to have been a dentist, is "president" of that fearfully and wonderfully named organization, "The American Raw Food, Health and Psychological Clubs." According to the Estes advertising material, seven years ago he was a physical wreck and was given up by his doctors. He had, if we are to believe his claims, "chronic smelling catarrh," frontal sinus trouble, "weak lungs," chronic appendicitis with adhesions, chronic throat trouble, chronic neuritis, "rheumatism of heart and joints," enlarged heart, Bright's disease, constipation, and partial paralysis of the limbs from the hips down. Otherwise, apparently, he was all right—except that he was baldheaded. Then by his "System of Dynamic Breathing" and the use of raw foods, he has "rebuilt himself" and today is "bub-

bling over with health, vitality and energy"—and if his pictures tell the truth, has a good head of hair. Is it any wonder that he calls himself "The World's Greatest Health Scientist, Psychologist and International Authority on Old Age, Raw Foods, and Dynamic Oxygenation"? At present Dr. Estes is giving his lectures in Chicago, and the Chicago papers, both in their advertising pages and in their news columns, relate some of the Estes marvels. One of the claims made by St. Louis Estes, both today and for a few years past, is that he is "Lecturer on U. S. Public Health Service." The Surgeon-General of the United States Public Health Service, under date of Oct. 20, 1924, notified the American Medical Association that St. Louis Estes has never been connected with the Public Health Service in any way.

CHIROPRACTIC COLLEGES AND PRELIMINARY EDUCATION

California has a law which is supposed to require that a high school education be the minimum standard for admission to the study of chiropractic. A letter sent to a prospective applicant by the Berkeley Chiropractic College of Berkeley, Calif., gives an idea of the failure of some chiropractic colleges to demand even this requirement for admission. A portion of the letter, which is signed "P. Purviance," follows:

> I enclose a copy of our State Laws. Our new catalog is not yet out. Our new board has been appointed under the Law. They are giving examinations as rapidly as they can.
>
> Now is a splendid time to come into the Chiropractic Profession in California.
>
> You will notice by the law, that there are ten subjects required calling for 2,400 hours, over a period of 18 months.
>
> The price of the course is four hundred dollars ($400.00); if a high school diploma is desired, that is $100.00 extra. The requirements for high school you will find in the marked copy of the Law in Section 5.
>
> The (chiropractic) board seemed to be inclined to be generous in the matter of equivalents for the High School course. We give credit for the subjects in the Chiropractic Course on the High School Course and then teach those subjects required in the High School Course that are not in the Chiropractic, such as U. S. History and Civil Government both State and National and then give the High School Diploma as we have a legally incorporated High School with a charter from the State to grant High School Diplomas.

How long will the people of California tolerate an institution of this type?

THE COCKROACH

Practically every insect that flies or walks about on six legs has been accused from time to time of some part in the transmission of disease. One of the earliest insects to be associated familiarly with man was the cockroach. Paleontological studies indicate, as pointed out by Dr. E. S. Goodwin,[1] that the cockroach has followed man ever since he first went down to the sea in ships. The first published description apparently was that in a book on insects printed in 1634, in which it was related that Sir Francis Drake found on capturing the *San Felipe* in 1587 that there were large numbers of this particular pest on board. Heretofore, the cockroach has not been seriously indicted for any part in disease transmission, and even this most recent survey of its habits, including its diet and other physiologic functions, is unable to do more than to mention some of the facts that are still unknown. The cockroach does not reach adult size until after two or three years, so that Dr. Goodwin characterizes it as the Methuselah among insects. The age at which it becomes sexually mature is apparently unknown. It secretes constantly an unmistakable, foul smelling secretion. A cockroach eats anything and has no sanitary sense, since it disposes of its excretions everywhere. It is plentifully supplied with parasites, which live not only on its body but also within its intestinal tract. Therefore, while this pest has not been directly incriminated in the transmission of any single disease, it is clear that it has unrivaled opportunities for the dissemination of disease-producing germs. Long before it became evident that various types of insects might have some part in spreading disease, attempts were made to eradicate the cockroach because of its obvious lack of esthetic value. Such methods included traps, heat, and both liquid and vaporous poisons. There appears to be no doubt that the proper use of hydrocyanic gas as is used for destroying rats on ships is equally efficient in destroying insects of various types, but so far as is known nothing short of this is sufficient for destroying the ova as well as the adult cockroach. It is clear that many factors concerning the life and habits of this widely disseminated and exceedingly common insect are unknown, and, as Dr. Goodwin points out, these facts must be supplied if we are to govern properly its activities. Here is a field of research in which the entomologist and bacteriologist may work in unison.

1. Goodwin, E. S. S.: The Cockroach, J. State Med. **32**: 470 (Oct.) 1924.

WHY TUCKER'S ASTHMA SPECIFIC?

For some years there has been put out from the village of Mount Gilead, Ohio, a nostrum known as "Tucker's Asthma Specific." The Tucker nostrum, which is sold on the mail-order plan, declares on the label the presence of 5 grains of cocain to the fluidounce. The stuff has been analyzed at various times, and substantial amounts of cocain have been found. In 1903 Aufrecht examined the stuff and reported finding 1 per cent. of cocain hydrochlorid. In 1906 Anselmino reported 1 per cent. of alkaloid, the greater part of which was cocain. In 1906 also, Dr. Herman Vickery of Boston reported that analyses he had had made showed the presence of 7 grains of cocain hydrochlorid in each ounce of the remedy. In August, 1906, Dr. N. P. McGay of Shiloh, Ohio, reported a case of cocain poisoning in a 5-year old child from the use of the Tucker preparation. The Massachusetts State Board of Health in its official bulletin for January, 1907, declared Tucker's Asthma Specific unsalable in that state because of its cocain content. The London *Lancet*, Feb. 29, 1908, reported a case of cocain poisoning in a woman who had used the Tucker preparation. The same issue of the *Lancet* recorded that the British agent for the Tucker nostrum had been prosecuted for selling

a product containing cocain without labeling the preparation "poison." Analysis of the "cure" at that time was said to have shown the presence of nearly 4 grains of cocain to the ounce. In 1910, the United States Department of Agriculture issued a bulletin on "Habit-Forming Agents" and specifically warned against "Tucker's Asthma Specific," which, it declared, "consists of a solution of cocain." In March, 1911, a sample of the Tucker Asthma Remedy analyzed in the Association's laboratory was found to contain cocain. A number of physicians have asked THE JOURNAL how the Tucker concern can send out a cocain-containing mixture without violating the Harrison Narcotic Law. In order to get an answer to this question, a letter was written to Washington. The Commissioner of Internal Revenue replied that while Tucker's Asthma Specific carried a label admitting the presence of 5 grains of cocain to the fluidounce, the facts were that before the remedy reached the public the cocain became hydrolized and there was either no cocain or but an infinitesimal quantity. The commissioner also declared that the mail-order distribution of this nostrum served "a great humanitarian cause" and, therefore, it had been decided by the Treasury Department to take no action enjoining its distribution. Further correspondence brought the statement that samples of the Tucker remedy, taken on the market and subjected to analysis, showed either no cocain, as such, or not to exceed one-half grain to the fluidounce. Even if one admits the "humanitarian" motives of the exploiters of this "patent medicine" and the various other claims made by the Treasury Department, the fact still remains that the sale of the Tucker remedy seems to be an obvious violation of one or two federal laws. If it contains no cocain, then it is misbranded under the federal Food and Drugs Act because the label declares the presence of 5 grains of cocain to the fluidounce. If it contains a derivative of cocain, and the Treasury Department has admitted that it does, then its sale violates the Harrison Narcotic Law, for that law applies just as much to the derivatives of cocain as it does to cocain itself. The tender consideration shown by the federal authorities for this Ohio nostrum is a cause for wonder.

THE ORIGIN OF URINARY AMMONIA

The biochemical importance of the nitrogenous catabolites of the body justifies the profound interest that has lately been devoted anew to the sites of their formation. The supremacy of the liver in relation to the genesis of urea seems to have been reestablished by the recent studies of Bollman, Mann and Magath.[1] The fate of uric acid in the body is receiving elaborate consideration from the biochemists of the Medical School of Harvard University,[2] with indications that some of our cherished traditions about one of the most discussed of all urinary components may be upset. No more startling pronouncement has been made of late, however, than the assertion of Nash and Benedict[3] that the kidneys themselves form the ammonia that they excrete. The hypothesis has not gone unchallenged, but the victory seems to rest on firm experimental foundation. Recently Loeb, Atchley and Benedict[4] of Columbia University College of Physicians and Surgeons have verified the original decisive observations that in dogs the ammonia content of the blood taken from the renal vein is greater than that of arterial blood or of venous blood from other sources in the same animal. They have gone a step further, however, by demonstrating that in the case of rabbits—animals that excrete only traces of ammonia in the urine—the ammonia content of the renal vein blood is practically the same as that of blood from the aorta. Thus, the places of the formation of urea and ammonia in the body seem to be well established—for the present, at least.

1. Bollman, J. L.; Mann, F. C., and Magath, T. B.: The Effect of Total Removal of the Liver on Urea Formation, Am. J. Physiol. **69**: 371 (July) 1924. The Liver and Urea Formation, editorial, J. A. M. A. **83**: 1336 (Oct. 25) 1924.

2. Folin, O.; Berglund, H., and Derick, C.: The Uric Acid Problem, J. Biol. Chem. **60**: 361 (June) 1924. The Uric Acid Problem, editorial, J. A. M. A. **83**: 1246 (Oct. 18) 1924.

3. Nash, T. P., Jr., and Benedict, S. R.: J. Biol. Chem. **48**: 463 (Oct.) 1921.

4. Loeb, R. F.; Atchley, D. W., and Benedict, E. M.: Observations on the Origin of Urinary Ammonia, J. Biol. Chem. **60**: 491 (June) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Busts of Drs. Sanders and Cochran.—The bronze bust of Dr. William H. Sanders, a gift of the Alabama State Medical Association to the state, has been received. It will be mounted at the entrance of the state health department building, Montgomery, at the right of which entrance now stands a bust of the late Dr. Jerome Cochran, also a gift of the state medical association. Dr. Sanders, who died in 1918, was formerly state health officer and for many years a professor in the medical department of the University of Alabama.

Chiropractors Cited.—W. J. Donovan and J. A. Robinson, chiropractors, Selma, have been cited to appear in the circuit court of Dallas County, it is reported, to determine by what right they maintain offices and practice chiropractic. Under the revised code, a chiropractor or other practitioner may be brought into court and questioned regarding his work; if it appears that the law is being violated, he may be told to stop his practice. Should it later appear that he has not obeyed the court, he may be arrested and fined or imprisoned for contempt. The new method of dealing with these cases (THE JOURNAL, August 16, p. 537) denies chiropractors the right of trial by jury and makes them subject to quo warranto proceedings.

CALIFORNIA

Physician Sentenced Again.—Dr. George H. Wymann, Los Angeles, was sentenced to imprisonment at Fort Leavenworth, Kan., October 13, for violation of the Harrison Narcotic Law, it is reported. In 1918, Wymann was sentenced from Texas to imprisonment at Leavenworth for violation of the Harrison Narcotic Law, which fact he failed to mention in his application for a license to practice in California.

Smallpox in Fresno County.—Dr. George L. Long, health officer of Fresno County, stated, October 17, it is reported, that more than fifty cases of smallpox were present in Fresno County. There were twenty-three cases isolated in homes, and in three instances the entire family had smallpox. A number of deaths have occurred. There were only seven cases in the county outside incorporated cities, and in the city of Fresno there were about thirty cases. It was decided at the meeting of the board of supervisors to erect six tents near the pest house, which was filled with patients.

Midwives in California.—The records of the state board of medical examiners show that there are eleven licensed midwives in the city and county of San Francisco, but the figures

of the city and county health officer place the number at 105. The tax collector's records show that eighteen of the 105 are licensed by that bureau. According to *California and Western Medicine,* only the board of medical examiners has authority to license midwives, and county and municipal tax collectors should refuse to collect taxes from persons not so licensed. If the facts noted above obtain elsewhere in the state, the number of midwives practicing legally and illegally in California is in the thousands rather than hundreds as has been claimed.

Extension Work of State Association.—The California Medical Association for many years has been developing a movement for graduate instruction among its county societies and members. The secretary has on hand a list of speakers and their subjects, which will be supplied to any county society or other organization desiring it. Some speakers have signified their willingness to conduct clinics or to render any other graduate service they can do. This work has constantly increased in volume and the list is being revised. All members who are interested are requested to communicate with the secretary of the state medical association, giving one or more titles of subjects they are willing to discuss and whether or not they will conduct clinics.

Physicians Cited and Licenses Revoked.—At least seven physicians were cited to appear before the state board of medical examiners, October 21. They are, it is reported, Dr. Frank P. Young, Los Angeles, head of the defunct Pacific Medical College; Dr James A. Warburton, charged with diploma mill activities; Dr. Robert D. Mace, Ukiah, now in San Quentin Penitentiary for obtaining money under false pretense, and Drs. Stuart N. Coleman, Stockton, George H. Wymann, Los Angeles, Newton J. Rice, Pomona, and James T. Fisher, Los Angeles, charged with violation of the Harrison Narcotic Law. A later report from the secretary of the board states that the licenses of Drs. Frank P. Young, Robert D. Mace and George H. Wymann were revoked.

State Board Attacks Beauty Doctors.—The executive officer of the state board of medical examiners, Dr. Charles B. Pinkham, issued a warning, October 12, against persons who advertise their ability "to remake the face." Among others, Dr. Pinkham announced, it is reported, that Gertrude Steele, a beauty specialist and naturopath, now under indictment for murder at Los Angeles, has been under investigation by the board since 1921. Records show that Mrs. Steele's license as a naturopath was revoked in that year after she had been charged with murder in connection with the death of her son-in-law, on whom she is alleged to have practiced beauty treatments. Dr. Pinkham said, it is reported, that the board had complaints from Los Angeles within the last month from persons on whom Mrs. Steele had operated, and that she is now charged with the murder of a patient who, it is reported, died of septicemia following treatment.

COLORADO

Max Found Guilty.—Dr. Alfred E. Max, Denver, was found guilty of murder in the second degree, it is reported, as the result of the death of a patient, last June, following an alleged illegal operation. The jury returned a verdict after ten minutes' deliberation. Max was tried in 1910 on similar charges; he was later indicted by the federal grand jury for the alleged sale of narcotics, and his license was revoked by the state board in 1918 after a hearing on charges of illegal practice. Max continued, nevertheless, to maintain offices in Denver.

Anti-Rat Campaign.—With the assistance of the bureau of biologic survey, U. S. Department of Agriculture, the Denver Department of Health conducted a campaign to eradicate rats, October 14-18. Denver had never before made a concerted drive against rats, the population of which in that city was estimated at 350,000 and the annual loss due to them, $550,000. The department of health put up one ton of barium carbonate in sacks of 2 and 8 ounces, with government directions attached, and arranged so that any person could obtain a package without charge by certifying that he would use it according to directions and assume responsibility for accidental or malicious poisoning. "The Modern Pied Piper," a government film, was shown in connection with talks by Mr. Gray, U. S. Department of Agriculture, who has supervised anti-rat campaigns in many cities. The following avenues of advertising the anti-rat campaign were used: broadcasting, the police bulletin, posters, letters, the firemen's publications, stores mentioned the campaign in their advertisements and newspapers gave prizes to stimulate interest. A follow-up campaign for making buildings rat-proof has been formulated.

DELAWARE

Society Favors Change in Law.—At the recent session, the Medical Society of Delaware passed a resolution, which, it is reported, was in part as follows:

WHEREAS, In Delaware it is possible for any body of men or any organization to secure a charter for educational purposes regardless of any financial backing or other facilities necessary to properly conduct such an enterprise; be it

Resolved, By the Delaware Medical Society, assembled in regular session at Milford, October 15, 1924, that we go on record as favoring a change in the charter law whereby any persons or organizations seeking a charter in Delaware for educational purposes shall deposit with the state securities to the amount of at least $50,000 as a guarantee of good faith, and be it

Resolved, That the legislation committee be instructed to use every effort to have such legislation enacted at the coming sessions of our general assembly.

The society unanimously passed another resolution relative to the case against Harold L. Wilson, chiropractor, charged with practicing medicine without a license, which was as follows:

That it is the desire of the society to secure from the office of the attorney general the reason for the nonprosecution of the Wilson case and that they prepare such legislation as may be necessary to remedy any lack of law in similar cases and present same to the legislature of 1925 for its consideration.

GEORGIA

Statue of Dr. Long.—The contract has been let for the erection of a statue in Georgia to Dr. Crawford W. Long. The statue of marble, costing about $9,000, will be completed not later than Dec. 1, 1925.

Licenses Revoked.—At a meeting of the state board of medical examiners, Atlanta, October 14, the licenses of Drs. Nathan A. Hughes and Talbert W. Hughes, of Atlanta, were revoked. It is reported that the Drs. Hughes were charged with advertising certain cures of social diseases and of having been convicted in Texas for violating federal laws governing the use of the mails.

ILLINOIS

Society News.—At the annual fall meeting of the Knox, Henry and Warren county medical societies, Galesburg, October 16, Dr. Isaac A. Abt, professor of pediatrics, Northwestern University Medical School, Chicago, discussed "Asthenic Children"; Dr. Wilbur E. Post, clinical professor of medicine, Rush Medical College, Chicago, "Paroxysmal Tachycardia," and Dr. Verne C. Hunt, Mayo Clinic, Rochester, Minn., "Surgery of the Lower Urinary Tract."

Smallpox.—The state commissioner of health reported, October 23, that forty-two cases of smallpox had been reported the previous week in Illinois as against two cases in the corresponding week of 1923, and that about the same ratio had prevailed in the state for the last five weeks. Since July, 378 cases had been reported, whereas for the same period last year seventy-five cases were reported. Outbreaks have occurred in Savannah, Carroll County, Assumption, Christian County, and Wabash Township, in Clark County. The outlook for the winter and spring is a matter of great concern.

State Society and Women's Clubs.—The Illinois State Medical Society has arranged a program of active cooperation with the Illinois Federation of Women's Clubs during the coming year for health work, one project being a series of conferences. The first conference will be at Urbana, November 12-13. Physicians, recommended by the state medical society, will discuss the prevention and cure of disease, studies will be made to appraise the actual health needs and an effort made to use local and auxiliary agents to meet those needs. Following these inventories, educational work will be conducted in those parts of the state where the need seems greatest.

Chicago

Hospital News.—The St. Anthony de Padua Hospital, 2875 West Nineteenth Street, is planning to build a $150,000 nurses' home.——The Norwegian-American Hospital, 1044 North Francisco Street, is preparing plans for the construction of a $300,000 addition.

Birth Control Office Opened.—The Illinois Birth Control League announced, October 23, it is reported, that an office had been established at 308 North Michigan Avenue, where persons may make appointments to consult with a physician concerning birth control. The office is in charge of Dr. Rachelle S. Yarros of Hull House. Following the refusal of the city health commissioner to license a birth control clinic,

the Birth Control League decided to open an office and to charge a nominal fee, thus avoiding the necessity of a city license.

INDIANA

Personal.—Dr. Blanche H. Muldoon has been appointed school physician at Peru.——Dr. Arthur L. Oilar, Rochester, epidemiologist of the state board of health, has been granted a six months' leave of absence to pursue special studies at the Harvard University Medical School, Boston, under a scholarship from the International Health Board.——Dr. Charles R. Sowder has been elected president of the Medical Research Society of the Methodist Hospital, Indianapolis; Dr. Charles L. Cabalzer, vice president, and Dr. Marie B. Kast, secretary.

Proposed Eugenics Bill.—The secretary of the Indiana State Board of Health announced, October 9, it is reported, that the board was planning to draft a bill which it will present to the legislature for the sterilization of degenerates and defectives who come under the jurisdiction of state agencies. The bill, the secretary said, would contain no punitive elements and would provide for safe, skilful and humane treatment of persons subject to the law. Such a law would look toward the creation of the office of state eugenist, an office, free from politics, to be operated solely in the interest of public welfare.

KENTUCKY

Physician Arrested.—Dr. Alfred J. Andrews, Lexington, was arrested by federal officers, October 4, on a charge of violating the Harrison Narcotic Law, it is reported, and was released under bonds of $3,500.

Personal.—Dr. Ernest B. Bradley, Lexington, who for ten years has been city bacteriologist, has resigned. Dr. Walter R. Pinnell has been appointed to succeed Dr. Bradley.——Dr. Edward B. Willingham, Paducah, has been elected county health officer, to succeed Dr. Oliver R. Kidd.

Health Week in the Schools.—The first observance in Kentucky of health week in the schools has been designated for November 9-15. Teachers in public, parochial and private schools have been requested to cooperate in this work, which is fostered by the state board of health and the Kentucky Tuberculosis Association. The week will open with health sermons in the pulpits, in which the majority of ministers throughout the state have pledged cooperation. Monday will be observed as clean-up day; Tuesday as food day; pupils will be instructed in healthful menus; Wednesday will be rest, exercise, sleep and fresh air day; Thursday will be devoted to physical examinations; Friday to health plays, games and exercises, and on Saturday the message of good health will be taken into the homes for the benefit of the smaller children.

LOUISIANA

Chiropractors Arrested.—It is reported that Walter W. Fife and Joseph Fife, chiropractors, New Orleans, were found guilty of practicing medicine without a license by Judge O'Donnell, September 29.

Society News.—At the recent meeting of the Eighth District Medical Society, Alexandria, Dr. Fayette C. Ewing, Alexandria, was elected president; Dr. Kirby A. Roy, Mansura, vice president, and Dr. Marion H. Foster, Alexandria, secretary-treasurer.

Personal.—Dr. John R. Turner has been elected director of the Claiborne Parish health unit to succeed Dr. A. R. Barr, who has been transferred to Beauregard Parish.——Dr. Thomas B. Pugh has been elected chairman of the board of health of Napoleonville.

Student Sues Medical College.—A petition was filed in the civil court, New Orleans, October 7, by Elmer H. Boals, for a writ of mandamus to compel the board of administrators and the faculty of the Tulane University of Louisiana School of Medicine to accept him as a member of the senior class.

MARYLAND

Personal.—Dr. William H. F. Warthen, Akron, Ohio, has been appointed director of the Bureau of Child Welfare by the commissioner of health. Dr. Warthen succeeds Dr. Mary Sherwood, who founded the bureau in 1919 and resigned last summer.——Dr. John G. Fitzgerald, professor of hygiene and preventive medicine, University of Toronto Faculty of Medicine, Toronto, Canada, lectured, October 13, at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore.——Dr. John Albert Key, Baltimore, has been appointed in charge of research work at the Shriners' Hospital for Crippled Children, St. Louis.

Uncommon Diseases Reported.—The Baltimore city health department officials have reported a case of typhus fever at the Sydenham Hospital for Communicable Diseases. Typhus here is uncommon, averaging about three cases a year. To date the source of infection has not been found.——One case of pellagra and one of epidemic meningitis, diseases rarely seen in this locality, have been reported to the health department.——At the U. S. Naval Academy Hospital, Annapolis, a case of leprosy has developed in a Filipino sailor. This patient was transferred to the U. S. Public Health Serivce and sent to the leprosarium at Carville, La.

MASSACHUSETTS

Hospital News.—The construction of a building for Beth Israel Hospital, Boston, which will have a capacity of 150 beds, a part of a $1,500,000 building program, has been started.

Personal.—Dr. Alice Hamilton, Harvard University Medical School, Boston, has gone to Poland and Russia to study health conditions in industry in behalf of the League of Nations.——Dr. Nathaniel Allison, St. Louis, has been appointed professor of orthopedic surgery at the Harvard University Medical School, Boston, and Dr. David H. Walker, Boston, the Augustus Lecompte professor of otology.

Mental Examination of Prisoners.—Dr. Ralph M. Chambers, Westboro, has been appointed chief of the new division which will conduct psychiatric examinations of prisoners in jails and houses of correction in the state, in accordance with an act passed by the last legislature. The purpose of the new law is to segregate mentally deficient prisoners from those having normal mentality so that they may be placed in hospitals for treatment and restoration to health. A unit of this division will be located at Springfield, one at Worcester, one at New Bedford, one at Salem and one at Boston. It is expected that work will start November 1.

MICHIGAN

Illegal Practitioner Jailed.—W. J. Fleming, Battle Creek, was arraigned before Justice Gray, September 24, charged with the illegal practice of medicine, it is reported. Unable to furnish bond of $5,000, Fleming was placed in jail. He has neither license nor diploma.

Personal.—Dr. William J. Kay, Lapeer, has been appointed by the governor, superintendent of the Michigan Home and Training School to succeed Dr. H. A. Haynes, who has been appointed medical superintendent of the new University of Michigan Hospital, Ann Arbor.——Dr. James S. Pritchard, Battle Creek, has been elected president of the Battle Creek Country Club.

Campaign Against Diphtheria in Grand Rapids.—Forty-two per cent. of the pupils enrolled in the grades of the public and parochial schools in Grand Rapids were immunized against diphtheria during the school year 1923-1924. Only those children were immunized whose cards were returned with the signature of the parent or guardian. The campaign has been reopened this year. During the last calendar year, it is reported, there were 308 cases of diphtheria in Grand Rapids and eight deaths.

Hospital News.—The Plymouth Mining Company, Wakefield, has awarded the contract for a $50,000 hospital building for the company.——The Three Rivers Hospital, Three Rivers, has been taken over by the city.——The Jefferson Clinic, organized in 1911, and the first "group medicine" clinic established in the state, formally opened a diagnostic hospital in Detroit, October 1. It has a capacity of fifty beds and is owned entirely by physicians. The speakers were Drs. Walter H. MacCraken, Angus McLean and Heinrich A. Reye, all members of the faculty of the Detroit College of Medicine and Surgery.

Full-Time Executive Secretary.—Mr. Harvey George Smith has been appointed by the council executive secretary of the Michigan State Medical Society. Mr. Smith is a graduate of the University of Wisconsin. He engaged in organizational work under the auspices of the Michigan Agricultural College, and during the war was on the food conservation subcommittee. He has been in Russia and Bulgaria since 1919, under the auspices of the Y. M. C. A. and Red Cross. The council plans to have Mr. Smith work under the direction of Dr. Frederick C. Warnshuis, who will continue to be the secretary-editor.

Wayne County Medical Society.—The Medical Library of the Wayne County Medical Society has been turned over to the custodian of the public library commission, Detroit, and moved to 625 Mullett Street, in accordance with an agreement made last year. The trustees of the Wayne County Medical Society still hold the land contract which was made in agreement with the purchasers of the society's property, who are awaiting a favorable time to build. In the meantime, the medical society uses the property free from rent and taxes. The board of trustees has not sought a new location in view of the favorable conditions under which the society occupies this property, believing that the full purchase price should be in hand before the society commits itself to a new investment.

NEW JERSEY

Case of Leprosy Reported.—The health officer of Elizabeth announced, it is reported, October 22, the discovery of a case of leprosy in that city. Jose Sanchet Ponce, the patient, a sailor, has lived in Elizabeth for eight months. He will be held in the city detention hospital until it is determined whether to deport him or to send him to the leprosarium at Carville, La.

Examination of Food Handlers.—According to the weekly bulletin of the Chicago Department of Health, among 11,857 food handlers examined by New Jersey health officials, 1,459 showed evidence of tuberculosis, ninety-one of which were well defined cases; 110 had colds and rhinitis; forty-eight had bronchitis; 208 had pyorrhea; 202 had pharyngitis, and 104 had enlarged or diseased tonsils.

NEW YORK

Examination of Children Under Weight.—The Cattaraugus County health demonstration has begun the examination of all school children in the county who are 10 per cent. or more under weight, and in actual contact with cases of tuberculosis. The director of the Cattaraugus County School Hygiene District states, it is reported, that there are 1,732 school children in the county, outside of the cities of Olean and Salamanca, who are under weight. Dr. Stephen A. Douglass, clinician of the Cattaraugus County health demonstration, is conducting the examinations.

Stairway Accidents.—F. H. Stebbins, an engineer, states in the *Industrial Hygiene Bulletin* that in Manhattan alone there have been more than 100 deaths in a single year due to falls on stairs, and that in the United States about 14,800 fatalities a year are due to such accidents, the majority due to tripping or slipping, the latter by far the more frequent. About 85 per cent. of these accidents occur during December, January and February on account of snow, ice, water and poor lighting. He recommends that stairs used by the public be covered with metal treads, constructed so that water will drain off.

Gouverneur's Milk Supply.—An ordinance became effective in Gouverneur, October 1, requiring that all milk sold shall be from tuberculin tested animals. Although two thirds of the milk supply of the village was pasteurized, more than 30 per cent. of the cows of dairies supplying this milk gave positive tuberculin reactions. One raw milk dealer was compelled to stop selling milk as every one of his cows reacted; another dealer lost one half of his supply for the same reason. One dairyman would not have the tuberculin test made; he has discontinued selling milk in the village, but continues to supply neighboring hamlets.

Buffalo Examines Food Handlers.—Under the provision of an ordinance recently enacted, all persons in Buffalo engaged in handling food for sale or service to the public must furnish their employers with a certificate issued by the department of health, which indicates that they are free from infectious disease in communicable form. The ordinance applies also to those who handle utensils from which food is served to the public. The duty of demanding the certificate is the employer's, the ordinance prohibiting the employment of persons without it. While the medical examination must be made in accordance with requirements of the department of health, food handlers may be examined by their own physicians. The certificate, however, must be issued by the department.

Veterans' Workshop Closed.—The Workshop in Long Island City, opened by the New York Tuberculosis Association in 1920 at the request of the Federal Board for Vocational Education for training tuberculous ex-service men, was closed, September 1. The Veterans' Bureau now furnishes instruction in its own institutions. In all, 291 men were admitted for training to the Workshop, 212 of whom discontinued the work before the courses terminated, and fifty were still under training when the institution closed. Of those not completing the courses, thirty-three stopped training because of a reactivation of their tuberculosis. Of the twenty-nine men who completed training, the average time required was twenty-eight months, and the average working time monthly was about ninety hours. The officer in charge reported that the tuberculosis became arrested in sixty of the 291 men admitted while in training, and 12 per cent. broke down. Of the twenty-nine men trained, fifteen became jewelry makers, nine watch repairers and five cabinet makers. The New York Tuberculosis Association continues to maintain a vocational service for the placement of civilian sanatorium graduates and others whose tuberculosis is arrested.

New York City

Roentgen-Ray Clinic.—A roentgen-ray clinic will be started at police headquarters in this city for members of the police force and their families. Donations making the clinic possible were given by August Heckscher, New York, and Frank Phillips, Omaha. Surgical instruments and equipment were contributed by Dr. Ernest Fahnestock, honorary police surgeon. Dr. Patrick J. Murphy will be in charge.

Free Insulin.—The Masonic Hospital Foundation has established an insulin fund at the Broad Street Hospital for the treatment of patients with diabetes who are unable to pay for insulin. The foundation and the staff of the Broad Street Hospital have also arranged for free daily clinics, Saturdays and Sundays excepted, for the instruction of diabetic patients in the preparation of diets and the administration of insulin.

Public Health Lectures.—The public health education committee of the Medical Society of the County of New York in cooperation with the New York Academy of Medicine has arranged for the following lectures:

October 25.—"The Cornerstone of Health".....Dr. Thaddeus P. Hyatt
November 5—"Simple Goiter in Adolescence".....Dr. David Marine
November 12.—"Developments of Modern Medicine in Measles and Scarlet Fever" .....Dr. William H. Park
November 21—"Heart Disease in Children, Its Cause and Prevention".....Dr. Charles H. Smith
November 25—"The Practical Value of Roentgen Ray and Radium in the Treatment of Cancer".....Dr. Francis Carter Wood
December 5—"The Neurotic Child".....Dr. Edith R. Spaulding
December 10—"Some Aspects of Medicine in Industry".....Dr. Cassius H. Watson

These lectures will begin at 8 o'clock.

Society News.—Dr. William S. Miller, professor of anatomy, University of Wisconsin Medical School, Madison, will deliver the second Harvey lecture at the New York Academy of Medicine, October 25. His subject will be "A Study of the Normal and Pathologic Histology of the Lung."——At a meeting of the Kings County Medical Society, Brooklyn, October 21, Dr. William D. Haggard, Nashville, Tenn., president-elect of the American Medical Association, gave an address on "American Citizenship"; Dr. James S. Elliott, Wellington, New Zealand, on "Medicine in New Zealand," and Dr. Robert H. Russell, East Melbourne, Australia, on "Medicine in Australia."

NORTH CAROLINA

Personal.—Dr. William H. Smith, Goldsboro, was elected president at the recent organization of the Wayne County Tuberculosis Association.——Dr. Rowland M. Lancaster, Mount Airy, has been elected health officer of Surry County to succeed Dr. Lester L. Williams, who recently resigned.——Dr. G. B. Gambrell, Mooresville, has been appointed health officer of Davidson County, to succeed Dr. Forrest J. Lancaster, resigned.

OHIO

License Suspended.—The license to practice medicine of Dr. Samuel F. George, Lima, has been suspended by the state medical board for a period of three months, it is reported, for violation of the law that prohibits extravagant advertising.

Charges Filed Against Nine Chiropractors.—Affidavits have been filed by the state medical board against nine chiropractors of Crawford County, charging them with practicing medicine without a license, it is reported. This is the first action taken in Crawford County against chiropractors.

Osteopath Cited to Appear Before Board.—W. C. Jackson, Bryan, an osteopath, has been cited to appear before the state medical board in January for a hearing, it is reported, as an outcome of a recommendation filed by the coroner in connection with the death of a child, last May. The coroner held

that the child died from the effects of ether while being prepared for a tonsillectomy and that Jackson had overstepped the bounds of his license.

Judge Upholds Barring Unvaccinated Children from Schools.—In an injunction suit brought against the school board of Cardington to restrain the board from enforcing compulsory vaccination, Judge Wood, Mount Gilead, upheld the constitutionality of Section 7686 of the Ohio School Laws, and declared that the Cardington Board of Education was clearly within its "discretionary rights" in excluding pupils who failed to comply with its vaccination order. The injunction suit was brought against the board after several unvaccinated children had been excluded from the school.

Society News.—Dr. William H. Finley, Xenia, was elected president of the second councillor district of the Ohio State Medical Association, September 25; Dr. Arthur O. Peters, Dayton, secretary; Dr. Herbert C. Haning, Dayton, treasurer. Dr. Millard F. Hussey, Sidney, is the councillor.——At the annual meeting of the Northwestern Ohio Medical Association at Toledo, October 14, Dr. Norris W. Gillette, Toledo, was elected president; Drs. Edwards H. Porter, Tiffin, and G. S. Wilcox, Ada, vice presidents; Dr. Barton L. Good, Van Wert, secretary, and Dr. John R. Johnson, Lima, treasurer. The next annual meeting will be held in Van Wert.

Medical Care for the Poor.—Formerly the city of Columbus appointed physicians at a monthly wage to care for the indigent sick within a prescribed area. This plan has been changed on recommendation of the city health officer, Dr. James A. Beer, so that all indigent sick who are able to visit a physician's office go to one of the Ohio State University dispensaries. Those who are confined at home sick will be visited by a representative of the city health department, and if the services of a physician are needed, the family physician will be called and paid by the board of health at the rate of $3 per visit.

PENNSYLVANIA

New Clinics.—The state health department recently opened a new tuberculosis clinic in Quakertown with Dr. Raymond D. Tice in charge. There are clinics in Bucks County at Bristol and Doylestown. Another clinic was recently opened by the state at Ambler.

State Issues Birth Certificates.—Early in October, with the cooperation of the U. S. Census Bureau, the Commonwealth of Pennsylvania began to issue to parents of new-born children an official notice that the birth had been registered at the state capitol. These notices will be accepted by school authorities in lieu of the official birth certificate for which parents in the past have paid a fee. Parents who fail to receive these notices are requested to communicate with the state health department.

Philadelphia

Shriners' Hospital.—The Shriners' Hospital for Crippled Children is to be erected on Roosevelt Boulevard near Pennypack Creek. Mayor Kendrick announced that the total cost of the institution will be about $1,000,000, the structure costing $750,000. The hospital will have one hundred beds for destitute crippled children of all races and creeds.

Personal.—Dr. William Blair Mosser will be the first to hold the William H. Bennett fellowship, which was created by a gift of Dr. Charles H. Frazier, professor of surgery at the University of Pennsylvania School of Medicine.——Dr. Katherine Gifford of Scotland has been appointed senior resident to the hospital of the Woman's Medical College of Philadelphia, where she will study American methods for six months.

Community Health Experiment.—The city health department, cooperating with other health and social welfare agencies, will conduct an extensive health experiment for a period of from three to five years in the territory bounded by Frankford, Delaware and Girard avenues and Oxford Street, a community comprising a population of about 30,000. The object will be to learn how this community reacts to intensive health and social welfare work. The community plan has been tried in New York, New Haven, Boston and Detroit, but not in Philadelphia heretofore. A general council of twenty-five members will supervise the various activities, and residents within the district will be organized to serve as an advisory committee. There will be complete coordination of health activities through district headquarters. The program includes clinics, sanitary inspectors, visiting nurse service, family welfare service and educational work. This district was selected in view of the diversity of nationalities represented.

TENNESSEE

Physicians Arrested.—Dr. Buchanan S. Wert, Dr. Abraham W. Boyd and Dr. George F. Ryan, all of Chattanooga, were arrested, October 3, it is reported, by Deputy U. S. Marshal Geismar on charges of violating the Harrison Narcotic Law. Dr. Boyd is now under sentence of two years in a federal penitentiary for violation of the Harrison Narcotic Law, it is reported, his case having been appealed.

Personal.—Sam H. McCrary has resigned as superintendent of the Knoxville General Hospital, Knoxville.——Dr. George A. Hatcher, for the last ten years first assistant to Dr. Winfield Scott Farmer of the Central State Hospital, Nashville, and Dr. Robert H. Elrod, third assistant, resigned, October 1. Dr. Hatcher goes to the Manhattan Eye, Ear, Nose and Throat Hospital, and Dr. Elrod to the University of Pennsylvania for postgraduate work.

TEXAS

Yellow Fever Quarantine Raised.—The quarantine established following the death from yellow fever of Martin Perez, a Mexican (THE JOURNAL, October 25, p. 1344), it is reported, was raised, October 15, after federal, state and local health authorities were convinced that all danger in connection with this case had passed.

Society News.—At the meeting of the Texas Surgical Society, Galveston, October 14, Dr. Harold M. Doolittle, Dallas, was elected president; Drs. Andrew B. Small, Dallas, and Kenneth H. Aynesworth, Waco, vice presidents; Dr. Harold L. D. Kirkham, Houston, secretary (reelected), and Dr. John B. Smoot, Dallas, treasurer (reelected). The next meeting will be in Dallas the second Monday and Tuesday of April.——At the semiannual meeting of the Northeast Texas Medical Society, Texarkana, Dr. William Hibbetts, Texarkana, was elected president; Drs. Dorí Bean, Marshall, and Thomas S. Ragland, Gilmer, vice presidents, and Dr. James E. Bussey, Longview, secretary-treasurer. The next meeting will be at Gilmer, the second Tuesday in April, 1925.——At the annual meeting of the Northwest Texas Medical Association, Mineral Wells, October 15, Dr. Quincy B. Lee, Wichita Falls, was elected president and Dr. Horace D. Prichard, Wichita Falls, secretary-treasurer. The next meeting will be in Wichita Falls.

VERMONT

Hospital News.—The Bishop Degoesbriand Hospital building at Burlington, which cost about $300,000, was recently opened. It will accommodate 100 patients.

State Medical Election.—At the one hundred and eleventh annual meeting of the Vermont State Medical Society, Burlington, October 9-10, Dr. Eugene A. Stanley, Waterbury, was elected president; Dr. Edward A. Tobin, North Bennington, vice president; Dr. William G. Ricker, St. Johnsbury, secretary, and Dr. David Marvin, Essex Junction, treasurer.

VIRGINIA

Hospital News.—The twenty-room house which has been used as a private sanatorium in Warrenton will be purchased by subscribers to the Fauquier County Hospital in Warrenton, it is reported, and rented until sufficient funds are in hand to equip and administer a hospital.——The Kiwanis Club, Danville, has opened a cottage adjacent to the Hilltop Sanitarium as a children's ward. It has accommodations for six.

State Medical Election.—At the annual meeting of the Medical Society of Virginia, Staunton, October 14-17, Dr. Hunter H. McGuire, Winchester, was elected president; Drs. Richard P. Bell, Staunton, Landon E. Stubbs, Newport News, and J. Bolling Jones, Petersburg, vice presidents, and Miss Agnes V. Edwards, Richmond, secretary-treasurer. The president, Dr. William W. Chaffin, Pulaski, was prevented by illness from attending the meeting and Dr. Hunter H. McGuire presided.

"Eye Specialist" Convicted.—J. E. Masrow, Norfolk, who, it is reported, advertised extensively that he was a specialist, was recently fined $50 and costs in two cases on charges that some of his "testimonials" had never been written, signed or sanctioned by the persons whose names were attached. The Virginia State Board of Examiners, according to the *Optical Journal and Review*, has revoked the license of Masrow. The recently enacted optometry law directs that the state board shall revoke a certificate if the holder thereof is guilty of deceit in his practice.

WASHINGTON

Health Officers Must Be Physicians.—According to an opinion of Attorney General John H. Dunbar, persons licensed in Washington to practice osteopathy but not licensed to practice medicine and surgery, cannot serve as city health officers. The attorney general's opinion points out, it is reported, that an interpretation of the statutes makes it clear that only a regularly qualified physician is eligible to hold the position of health officer.

Hospital News.—The Sequim Prairie Hospital, Sequim, has been sold, and Dr. Paul D. Moore, who has been in charge, has bought a residence on Cedar Street which will be remodeled into a hospital. —— The new St. Peter's Hospital at Olympia, a five-story structure costing about $450,000 and which will accommodate 300 patients, was dedicated late in July.——The Western State Hospital for the Insane at Steilacoom, which was partially destroyed by fire with a loss of about $20,000, will be remodeled along fireproof lines.

WEST VIRGINIA

Physician Restrained from Practice in Morgantown.—Following a temporary injunction issued against Dr. Willie H. Howell, September 6, the circuit court enjoined Dr. Howell from practicing medicine or surgery in Morgantown prior to July 1, 1929, it is reported. The injunction was issued at the instance of Dr. Irvin Hardy, who claims he entered into a contract, May 7, 1923, by which Dr. Howell was not to practice in Morgantown for five years from any time that he might sever his relations with the hospital of which Dr. Hardy is owner. In handing down an opinion, the judge held that the contract had evidently been entered into in good faith and that it should hold.

WISCONSIN

State Board May Prosecute.—In reply to an inquiry from the secretary of the state board of medical examiners as to the permissibility of the board as a body to file complaints against men who are practicing in violation of the Medical Practice Act, the attorney general advised that any member of the board, acting in good faith and on the request of the board, may sign such criminal complaints without incurring liability. The attorney general said he did not find any provision in the state law which would appear to justify a complaint by the Wisconsin State Board of Medical Examiners as a board. The law appears to contemplate that a criminal complaint shall be signed by an individual. It would appear, however, he said perfectly proper for the board, after having made an investigation, to direct either the secretary or one of its members familiar with the matter to sign a complaint. Such member should believe in good faith that violation of the law has been committed and the entire facts properly could and should be submitted to the board's council. Under these conditions the attorney general believes that any member of the board may sign a criminal complaint against violations of the Medical Practice Act without incurring liability.

CANADA

Hospital News.—At a recent meeting of the board of the Nanaimo Hospital, Nanaimo, B. C., a plan to construct an addition to the hospital having a capacity of seventy-five beds was approved. —— A new civic hospital is to be built in Ottawa, Ont., at a cost of $3,500,000. It will be one of the largest hospitals of its kind on this continent.——A hospital is to be built at Windsor, Ont., to be known as the Metropolitain Hospital. The cost will be about $250,000, which will be met pro rata by the border cities.

Society News.—At the seventeenth annual meeting of the Saskatchewan Medical Association, Moose Jaw, recently, Dr. Thomas M. Leask, Moose Jaw, was elected honorary president; Dr. Thomas W. Walker, Saskatoon, president; Drs. William A. Harvie, Regina, and Robert R. Stirrett, Swift Current, vice presidents, and Dr. Alexander M. Young, Saskatoon, secretary-treasurer. Dr. John F. Kidd, Ottawa, ex-president of the Canadian Medical Association, and Dr. Thomas C. Routley, Toronto, secretary of the Canadian Medical Association, were elected honorary members.

GENERAL

Rockefeller Institute Election.—Dr. Theobald Smith, Princeton, N. J., has been elected vice president of the Rockefeller Institute for Medical Research, New York, to succeed the late Dr. T. Mitchell Prudden, and Dr. Francis G. Blake, New Haven, Conn., secretary, to succeed the late Dr. L. Emmett Holt, and Dr. John Howland, Baltimore, to fill the vacancy in the board created by the death of Dr. Holt.

New Journal.—The American Society for Clinical Investigation has founded a journal to be called the *Journal of Clinical Investigation*, and Dr. G. Canby Robinson, dean-elect and professor of medicine at Vanderbilt University Medical Department, Nashville, Tenn., will be editor-in-chief. The new journal has been made possible by a grant to the society by the Rockefeller Institute for Medical Research. The first issue appeared in October.

Automobile Fatalities for 1923.—The Department of Commerce announces that during 1923 there were 14,412 deaths resulting from accidents caused by automobiles and other motor vehicles, excluding motorcycles, within the death registration area of the United States, exclusive of Hawaii. The death registration area contains 87.6 per cent. of the total population of the country. These deaths represent a rate of 14.9 per hundred thousand of population, as against 12.5 in 1922, 11.5 in 1921, 10.4 in 1920, 9.4 in 1919 and 9.3 in 1918.

Nursing Among the Indians.—The American Red Cross has appointed a third nurse to work among the Indians. She will be assigned to the Rosebud Indian Reservation in South Dakota. The Red Cross has conducted public health nursing among the Indians for the last two years, the Bureau of Indian Affairs furnishing quarters and transportation to various parts of the reservation and the Red Cross paying the nurses. The commissioner of Indian affairs recently appointed Miss Elinor D. Gregg, a former Red Cross nurse, as supervisor of field matrons and nurses, a new service organized by the government for the purpose of inaugurating welfare work among the Indians.

Congress of French-Speaking Physicians.—The number inscribed at this congress recently held at Quebec, Sept. 10-12, was 426. Prof. A. Vallée presided; cancer, tuberculosis and child mortality were the main topics discussed. Professors Sergent, Ribadeau-Dumas and Jeanneney brought greetings from the profession in France, and a banquet was tendered by them in the name of the Académie de médecine, Paris. The president-elect is Dr. A. Lesage, Montreal, vice presidents, Drs. P. C. Dagneau, Quebec, Collin, Winnipeg, and O. Menard, Nashua; secretary general, Dr. G. Archambault; secretary, Dr. Boucher, and treasurer, Dr. Aubry, all of Montreal. Prof. D. Brochu was the founder of the Association of French-Speaking Physicians, and the next meeting, at Montreal in 1926, will mark its twenty-fifth anniversary.

Delegates to Narcotics Conference.—The Secretary of State has announced the appointment of Dr. Rupert Blue, U. S. Public Health Service, Bishop Charles E. Brent, New York, Representative Stephen G. Porter, Pennsylvania, chairman, Edwin L. Neville and Mrs. Elizabeth W. Wright, of the state department, as delegates to the narcotics conference, Geneva, November 17, to be held under the auspices of the League of Nations. Participation in this conference was authorized at the last session of Congress, which appropriated an amount not to exceed $40,000 for this purpose. The conference will comprise representatives from all countries allied with The Hague Opium Convention of 1912, and will deal particularly with raw materials, opium and coca leaves and manufactured drugs. A message has been sent to the conference by the Federal Council of Churches of the United States, urging the adoption of a plan for the complete suppression of the poppy and other narcotic plants except for medicinal and scientific purposes.

Correspondence Courses in Public Health.—Seven state departments of health and six universities have conducted correspondence courses in public health in the last two years. According to the U. S. Public Health Service, the courses given by the departments of health in Kansas, Illinois, Ohio, New Mexico, and Pennsylvania are for sanitarians. In Virginia and in Minnesota, courses are given in the hygiene of maternity and infancy for mothers; a course in public health is offered in Pennsylvania for persons connected with industries, schools and civic organizations. Mimeographed or printed lessons are distributed in some instances, and in two cases textbooks are used. In no case is tuition charged by the state departments of health. The correspondence courses offered by universities are in five instances conducted by the extension divisions and in one by the department of hygiene. Most of the university courses are offered primarily for persons engaged, or who expect to be engaged in public health work. In all cases tuition is charged, textbooks are used, examinations given and academic credit for all of this work

is granted except in one university where credit is given only when the student is enrolled in the school of medicine.

Society News.—At the annual meeting of the Medical Association of the Southwest, Kansas City, Mo., October 13-14, in conjunction with and as a part of the Southwest Annual Clinical Conference of the Kansas City Clinical Society, Dr. Truman C. Terrell, Fort Worth, Texas, was elected president; Drs. Clarence B. Francisco, Kansas City, Mo., Edgar C. Duncan, Fredonia, Kan., Sidney J. Wolfermann, Fort Smith, Ark., and Samuel E. Mitchell, Muskogee, Okla., vice presidents, and Dr. Edward H. Skinner, Kansas City, Mo., secretary-treasurer. The next annual meeting will be at El Paso, Texas, in conjunction with the annual meeting of the Medical and Surgical Association of the Southwest. The total attendance at the 1924 meeting was more than 2,000.——The fifth annual convention of the American Red Cross will be held in St. Louis, 1925. The total number of chapter delegates registered at the recent fourth national convention in Washington, D. C., was 547.——At the annual meeting of the American Public Health Association, Detroit, October 20-23, the following officers were elected: president, Henry F. Vaughan, D.P.H., Detroit; vice presidents, Drs. Oscar Dowling, New Orleans, Daniel A. McClenahan, Hamilton, Ont., Canada, and Powhatan S. Schenck, Norfolk, Va.; treasurer, Louis I. Dublin, Ph.D., New York, and secretary, Mr. Homer N. Calver, New York.——Dr. Rudolph Matas, New Orleans, was chosen president-elect of the clinical congress of the American College of Surgeons, to succeed Dr. Charles H. Mayo, Rochester, Minn.

LATIN AMERICA

Personal.—Dr. A. Esguerra has returned to Bogota after prolonged investigation of radium treatment in various medical centers in other countries. The useful cast he devised to hold radium applicators immovably against the lesion was described in The Journal, Sept. 30, 1922, p. 1180.——Dr. Vallecilla has also returned to Bogota from abroad, where he has been studying pediatrics.——Dr. M. L. Patrizi, of the chair of criminal anthropology at the University of Turin, has been lecturing in Argentina on the invitation of La Plata University.

FOREIGN

The Jelgersma Festival.—The twenty-fifth anniversary of Prof. G. Jelgersma's incumbency of the chair of nervous and mental disease at the University of Leiden was celebrated by the presentation of his portrait and addresses by twelve speakers representing the universities and medical societies of the Netherlands.

Fellowship for Research on Mineral Waters.—The Vulfranc Gerdy prize, recently founded at the French Académie de médecine at Paris, provides a stipend for three interns in some large French city who agree to devote four years to residence in some of the forty or fifty spas of France or other countries and study the mineral waters, their properties and effects, and present an annual report to the Académie.

Research on Plague.—The South African Institute of Medical Research, Johannesburg, has undertaken research into the harboring of plague by wild rodents and the prophylaxis and treatment of plague in man. The work is to be done largely in a mobile laboratory in the field and the present staff of the institute is to be augmented for this purpose by a bacteriologist and an entomologist.

School of Medicine for Women.—An effort is being made to raise an endowment fund for the London School of Medicine for Women on the occasion of the jubilee next month. The sum of £50,000 is being asked for, in order to endow chairs of physiology, pathology and anatomy which will be named after the three great women pioneers in medicine—Elizabeth Blackwell, Elizabeth Garrett Anderson and Sophia Jex-Blake. The queen has given £50 to the endowment fund.

Gift for Pathologic Department.—It was announced, October 5, at the Westminster Hospital old students' dinner, that Mr. A. J. H. Carhill has offered £20,000 through his nephew, Dr. Hildred Carhill, to the Westminster Hospital School of Medicine committee toward the establishment of a pathologic department to commemorate his father, the late John Buford Carhill. The offer is conditional on the school obtaining from the University Grants Committee of the Treasury assistance comparable with that afforded to the departments of medicine and surgery established elsewhere.

Bill to Repress Illegal Practice.—A bill has been presented in the lower house in France by a member of the house, Mr. E. Couteaux, prohibiting all advertising in the papers or otherwise in regard to professional treatments or pharmaceutical preparations except in periodicals intended solely for physicians. The penalties are from five days to a month in prison, and fines of from 500 to 5,000 francs or both. The *Presse médicale* reproduces the bill, with cordial approval, as the logical corollary of the laws restricting the practice of medicine to the qualified, but evidently without much hope of the passage of the bill.

Registration and Certification of Radioactive Substances.—The *Policlinico* quotes from the *Gazzetta ufficiale* the decree this year requiring the registration in the ministerio dell'economia nazionale, of all radioactive substances or preparations, for certification. After this first measurement, the substance must be returned every two years for further certification tests. This work is to be done by the Physics Institute of the University of Rome. The owner sending the radioactive substance must insure it against all risks. When the tests are completed, a certificate will be issued by the authorities which should be kept available for examination at any time.

Congress of German Naturalists and Physicians.—Over 10,000 were inscribed at this year's Naturforscherkongress, which was held at Innsbruck. Prof. W. His presided. The main topics were "The Mind and Matter Problem"; "Sensory Physiology in Bees"; "Goiter," and "Climate from the Medical Standpoint." The next meeting will be at Düsseldorf in 1926. A resolution was adopted protesting against the changes "planned and partially introduced by the Prussian government in the curriculum of the higher institutions of learning without consulting those most interested, slighting physics, mathematics, Latin and the natural sciences, which all help to train in logical thinking and exact observation."

Deaths in Other Countries

Sir **Charles Cameron,** for many years editor of the North British *Daily Mail* and formerly member of parliament for Glasgow; president of the health section of the Social Science Congress, 1881, and of the public health section of the annual meeting of the British Medical Association, 1884; October 2 at Engelfield Green, Surrey, England, aged 83.——Dr. **E. Münzer,** professor of internal medicine at the German University in Prague, author of works on the nervous system, diabetes and liver function, aged 59.——Prof. **F. Ghilarducci** of the chair of radiology at the University of Rome.——Dr. **E. Rochard,** Paris, perpetual secretary of the Société de chirurgie, aged 71.——Dr. **R. Chaperon,** Paris, radiologist to the hospitals of Paris.——Dr. **D. Greco,** instructor in dermatology at the University of Naples.

CORRECTIONS

By Instead of To.—The Journal, October 18, p. 1252, noted a campaign for funds to enlarge the Staten Island Hospital, New York, to 145 beds. It should have read "by 145 beds" instead of "to."

Coatesville Physician Sentenced.—Under this head The Journal, October 18, page 1253, noted the sentence for bootlegging of "Dr." H. D. Fox. The title was an error. Fox is not an M.D.

Government Services

U. S. Public Health Service

Surg. Norman Roberts has been directed to proceed from West Chester, Pa., to Washington, D. C., for duty at the hygienic laboratory.——Surg. Thomas B. H. Anderson has been directed to proceed from Fort Stanton, N. M., to Carlsbad and other places in New Mexico, and return, in connection with an outbreak of tularemia.

Hospitals Authorized

Pursuant to instructions of the Secretary of War, June 27, 1922, the organization of a surgical hospital (Reading Hospital Unit, Reading, Pa.) has been authorized.

Army Resignations

The resignation of the following army officers has been accepted by the President: Major Henry Beeuwkes, M. C.; Major George B. Lake, M. C., effective October 31, and Major Edward M. Welles, Jr., M. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 13, 1924.

The Milk Problem

The ministry of health has issued an important report on the milk problem. About 2 per cent. of the cows in this country yield milk containing tubercle bacilli. Much of our supply is produced under unhygienic conditions and is grossly contaminated with dirt. Sir George Newman, chief medical officer of the ministry, advocates an increased consumption of milk. The average amount of milk per capita daily amounts to only a quarter of a pint, less than half that of other countries, notably America. The grading of milk not only improves the quality of the output but also educates both producer and consumer. Nearly every county is now organizing "clean milk competitions." The chief sources of contamination of milk are the udder of the cow, the hands of the milker, the air and the utensils in which the milk is collected and transported. Regulations to insure clean milk exist. These include the sterilizing of vessels by steam or boiling water, cleansing of the udder and thorough cleansing of the hands of the milkers. If adequate cooling were added to these measures, it should be possible to attain a low bacterial count. But in many of the rural districts, owing to inadequacy of the sanitary staff and the indifference of local councils, little or no control is exercised. At urban centers, licenses are issued to producers whose milk satisfies certain standards of purity, and they are allowed to market their milk under certain recognized designations, as, for example, "certified milk."

Failure to Recognize Diphtheria

The prosecution of a physician, who is the leader of the antivivisection agitation in this country, for negligence in not recognizing diphtheria has somewhat exercised physicians generally, for the diagnosis of the disease is often difficult and may prove a pitfall even for those who are not unwary. Failure to take a swab was an important part of the indictment in the case in question. This has led some cautious physicians now to take a swab as a routine in every case of sore throat—a practice which they do not regard as necessary on medical grounds but which they follow for their own protection. The medical service subcommittee of the London insurance committee has reported another fatal case, in which a complaint was made against a panel physician for failure to recognize and treat a case of diphtheria. The subcommittee recommended that the attention of the ministry of health be called to the matter. But when this was done, one of the members (a physician) maintained that the action of the subcommittee was inadequate, because: diphtheria was one of the easiest diseases to recognize, and when treated immediately by antitoxin its originally high mortality fell to something less than 2 per cent.; ignorance and incompetence were shown by the physician, who stated that it was not his practice to take swabs of patients' throats, although he was paid $5,000 a year to care for panel patients; the case was one not for fine but for removal. Another member of the committee (also a physician) did not consider these remarks altogether correct or altogether fair. It was not correct to say that a swab would have settled the diagnosis, because there were "carriers" who always had the diphtheria bacillus in their throats. The physician ought, however, to have promptly sent the patient to a hospital. He could not altogether acquit the physician of negligence, but it was worth noting that the patient had had previous tonsillar trouble, which led to the belief that the more dangerous condition was only a recurrence of the former trouble. The first view was strongly supported by some of the lay members of the committee, and a resolution was carried that the physician in question "was grossly negligent in the treatment provided by him for the insured person, in that he failed to take a swab of the throat, although there was ample evidence to suggest that this test should have been applied; that he be severely censured; that the committee is of opinion that his continuance on the medical list would be prejudicial to the efficiency of the service, and that a representation to this effect be made to the minister of health."

Commission on Lunacy

In previous letters, cases have been reported from time to time showing the unsatisfactory state of the law in regard to lunacy, and announcing the intention of the government to reform it. As a first step, the Royal Commission on Lunacy Law and Administration and Mental Disorder has been appointed to inquire into the existing law and administrative machinery in connection with the certification, detention and care of persons who are or are alleged to be of unsound mind. It is also to consider the extent to which provision is or should be made for the treatment without certification of persons suffering from mental disorder, and to make recommendations. At the opening sitting of the commission, the board of control (the official body that controls lunacy administration) submitted evidence as to the working of the law and the methods by which it is administered. Suggestions were also made as to ways in which the system might be improved. The primary duty of the board is to visit institutions and see that no patients are improperly detained and that all receive proper care and treatment. The total number of insane patients, January 1, was 130,334. A considerable number of these are permanently detained, while large numbers pass through on their way to public psychopathic hospitals. The admissions to public psychopathic hospitals during 1922 were 20,367. To remove a patient to an asylum, a certificate must be issued by two physicians independently of each other in the case of a private patient, and by the parish physician in the case of a pauper patient. The reasons for considering the patient insane must be stated in detail in the certificate. This certificate is examined by the officials of the board and is not acted on unless found to be completely in order. Of about 100 certificates examined each day, from twelve to twenty are wrong, but in many of these the error is merely technical. Apart from this, perhaps two or three documents are found incorrect. The most common defect is that the physician does not show clearly whether the information on which he pronounces the patient insane was gained by his personal observation or was obtained from others. Certificates not in order are sent back to the physicians for correction. If after their amendment the board is unsatisfied, the alleged insane person is discharged. This rarely occurs. The board considers present safeguards, as regards certification, adequate. Any private patient detained has a right to demand a private interview with a visiting commissioner.

"Health Week"

Under the patronage of the king and queen, "Health Week" has been held. This week is regarded as an opportunity for calling the attention of citizens generally to matters essential to the welfare of the nation. A committee appointed by the Royal Sanitary Institute has issued a number of appropriate announcements. Emphasis is laid, for example, on the effect of coal smoke on health. Smoke is stated to be responsible for loss of sunshine, impurity of the atmosphere breathed, loss of fresh air in houses, mental depression and the destruction of vegetation. Our health ideas as a nation are rising. They centered first in the reduction of the death rate, and the general death rate for 1923, with the infantile mortality rate,

was among the lowest recorded. Attention is now being given to the quality of the race. Routine medical examination of school children shows that London boys of 8 years are nearly one-half inch taller than those of twenty years ago. Mentally, too, the boys are more alert. Another interesting fact is that 15 per cent. more children leave school with sound teeth than in 1913. The outstanding problem with regard to children is the sickness and mortality between the ages of 1 and 5. The Leicestershire Health Insurance Committee has introduced a new feature during Health Week by the distribution of "healthgrams" to schools. These deal with many phases of hygiene.

The Exclusion of Women Students from Medical Schools

With the shortage of men students and physicians during the war, a great increase of women students and physicians took place, and several medical schools that previously had admitted only men admitted women also. Now there is a tendency for some of these schools to revert to the prewar practice, and this provokes resentment among the advocates of women's rights. St. Mary's Hospital, London, is now considering the exclusion of women, who were first admitted to its school in 1916, at a time during the war when the number of men students was so small that it was thought that the school would have to be closed. At this time the London School of Medicine for Women was so full that its hospital (the Royal Free Hospital) was unable to accommodate all the students when they reached the clinical period of their training. It was therefore arranged that St. Mary's would take a certain proportion of the students for their clinical years. This policy apparently proved a success, for after the war it was continued. Further, it was decided in 1920 to admit women for the whole curriculum. A movement to exclude women in the future began six months ago with a petition to this effect from a large majority of the men students. This was considered by the hospital staff, which recommended that the board of management grant the petition. Then the women students submitted to the board a protest dealing with the arguments urged against the retention of women, urging that exclusion would be injurious to the women who had graduated from St. Mary's, as they could no longer take any pride in the school which had disowned them. They also pointed out that in several of the appeals of the hospital for funds the plea was made that it was committed to coeducation. The case of the men objectors is that coeducation in medical subjects is undesirable. During the war, women were asked as a patriotic duty to enter the medical profession, and they did so with eagerness. But now with the normal flow of young men into the profession the men fear that the profession may become crowded. Moreover, they think that sufficient women physicians to supply the demand of those who require their services can be supplied by the schools devoted entirely to the training of women. It is stated that the athletic record of St. Mary's has suffered by the admission of women, because first-class football players will not join a hospital in which there are women students. The women characterize the argument that the mingling of the sexes in medical education is unseemly as archaic, and point out that all the medical schools in the provinces, and in Ireland, Scotland, Wales, Paris, Vienna and Strasbourg admit women. Men, they say, will after graduation have to meet and confer with women in general and special practice, and in public health work on committees that discuss social problems and diseases. If prejudices exist it is better that the men should overcome them early in their careers.

Increase of Cancer in Scotland

Although the Scottish death rate for last year is shown by the report just issued to be the lowest on record, special attention is called to the heavy and increasing mortality from cancer. There were in all 6,376 deaths from the disease, the rate being 130 per hundred thousand—the highest yet recorded in Scotland. The deaths were 240 more than in the previous year, 578 more than the average of the preceding five years, and 790 more than the average of the preceding ten years.

The Prevention of Drug Addiction

A committee on drug control has been appointed by the ministry of health in order to arrive at a definite agreement as to how far physicians are justified in prescribing drugs, such as heroin and morphin, for drug addicts. The appointment of the committee is the outcome of continuous requests for guidance received from physicians in all parts of the country. Numerous cases have come to the knowledge of the authorities in which drug addicts are constantly obtaining supplies of morphin, heroin and other drugs on prescriptions given them by physicians. It is alleged that in some instances these prescriptions are given so that the drug victim may satisfy his cravings. It is suggested that penalties be inflicted in such cases. For this, new legislation may be necessary; but it is believed that the evil can be remedied by the issuance of an authoritative statement and by leaving the matter of penalties in the hands of the General Medical Council.

PARIS

(From Our Regular Correspondent)

Oct. 10, 1924.

Presidential Address Delivered at the Congress of Surgery

The thirty-third French Congress of Surgery was formally opened, Oct. 6, 1924, under the chairmanship of Dr. Tuffier, professor of clinical surgery at the Faculté de médecine of Paris, who delivered a forceful address on the present-day tendencies in surgery. He summed up these tendencies in a single word: precision—precision in technic, precision in observation, precision in the application to surgery of the discoveries of the experimental sciences. Tuffier paid just homage to the anatomist Farabeuf, who founded surgical technic in France.

Death of Prof. Auguste Broca

French surgery has suffered recently the loss of many eminent men. It is but a short time since Jalaguier and Richelot were taken from us, and now we are compelled to mourn the deaths, in quick succession, of Auguste Broca, Eugène Rochard and Paul Hallopeau.

Auguste Broca was the son of the anthropologist and surgeon Paul Broca, whose centenary was recently celebrated (THE JOURNAL, Aug. 16, 1924, p. 545). He was appointed surgeon to the hospitals of Paris in 1890, four years after becoming doctor of medicine. In 1895, he became agrégé professor. He was called to occupy the chair of operations and appliances at the Faculté de médecine of Paris, and later to that of clinical surgery for children. From the beginning of his career, Broca devoted himself more particularly to pediatric surgery and achieved a great reputation in this field. He published works on harelip, cleft palate, the treatment of tuberculous ostearthritis in children, surgery of the middle ear and the mastoid process. In collaboration with Dr. Paul Le Gendre, he published "Traité de thérapeutique infantile médico-chirurgicale." He achieved a place also in medical journalism, having been a collaborator of the *Gazette hebdomadaire de médecine et de chirurgie,* in which, while still a young surgeon, he waged a vigorous campaign against the existing system of medical education. Broca emphasized, during this campaign, the need of establishing a real staff of instruction, recruited with the aid of permanent agrégé professors and not appointed merely for nine years and then abandoned to their fate until such time as, by chance, ten or

fifteen years later, they succeeded in getting a chair or were dismissed, without any account being taken of their special aptitudes or any interest being shown as to what became of them in their old age.

Death of Dr. Eugène Rochard

Dr. Eugène Rochard, honorary surgeon to the hospitals of Paris, has died at the age of 71. Rochard was born at Brest in 1853, as the son of the hygienist Jules Rochard, who was inspector general of the marine medical service and president of the Academy of Medicine. Eugène Rochard began his medical career in the navy. After fifteen years of service, he came to Paris, and, although he did not pass over the traditional route by way of a hospital internship, he was appointed, as a result of a competitive examination, in 1893, surgeon to the hospitals, along with Pierre Delbet. He was an excellent clinician and a skilful operator. He had been a member of the Academy of Medicine since 1921.

Death of Dr. Paul Hallopeau

Dr. Paul Hallopeau, surgeon to the Trousseau Hospital, has died at the age of 47, as the result of disease contracted during the war. He was the son of Dr. Henri Hallopeau, a dermatologist, who died a few years ago. Before his internship, Paul Hallopeau had spent a year at Heidelberg as the assistant of Professor Czerny. He was later successively intern in the services of Professors Le Dentu, Lannelongue and Paul Berger. In 1912, he was appointed surgeon to the hospitals, and in 1920 he became a department head in the Trousseau Hospital, from which time he devoted himself exclusively to pediatric surgery.

Scholarships for Foreign Students

Owing to a decision rendered by the minister of public instruction, the commission on scholarships and reductions in university fees for foreign students has decided that only such requests would be considered as emanate from students who have commenced at least the third year of medicine.

Suppression of Information in Regard to Contagious Diseases

Dr. J. Noir, editor-in-chief of the *Concours médical,* has just published an article relative to an interesting communication presented to the recent Brussels medical convention *(journées médicales)* by Dr. Edouard Joltrain, head of the laboratories of the Faculté de médecine of Paris, on the subject of the administrative suppression of knowledge of contagious diseases. The communication traces the history of the mild epidemic of plague in Paris 1917-1920, and particularly in 1920. Up to this time, there had been no cases in Paris since 1689. The last epidemic in France had occurred in Marseilles in 1720. There was some difficulty in securing an avowal of the presence of plague in Paris on its appearance seven years ago, considerable hesitation being shown about reporting the first cases. The authorities were fearful of exciting the public mind. And yet the levelmindedness of the public was clearly shown by a rather unique prophylactic measure, the bounty placed on the heads of sewer rats, a measure which was, however, severely criticized in some quarters (THE JOURNAL, Oct. 16, 1920, p. 1080). The first case of plague, during the epidemic, was diagnosed, Dec. 3, 1917. A child aged 9 had been admitted to the Bretonneau Hospital (in the service of Dr. Guinon), the bearer of a suppurative adenitis of the axilla. The child was transferred to the surgical department, where it died under strange manifestations. Cultures of pus from the abscess were taken, and the streptobacillus of plague was found. But at this time no further cases were diagnosed. May 9, 1920, a child brought from Clichy was admitted (also to the Bretonneau Hospital, in Dr. Guinon's service), suffering from a bubo and presenting hemorrhagic purpura. The child died and the pus of the bubo was examined. On inoculation into a mouse, it gave rise to plague, as was officially recognized. The mother of the child, who was in the seventh month of pregnancy, stated that her husband had a small sore on his finger and had died a short time before, affected with a suppurative gland. His nephew, then a soldier stationed at Lons-le-Saulnier, came to the funeral, was taken ill four days later, and was transferred, suffering from plague, to the Val-de-Grâce Hospital, where the streptobacillus was sought and found. Also the mother developed a bubo, but no bacillus was found. The serologic examination by the Bordet method was, however, positive. Another case was diagnosed soon afterward. The Société médicale des hôpitaux of Paris immediately held a special meeting behind closed doors. Dr. Guinon proceeded to develop the situation. Also Professor Teissier reported the results of a necropsy on a woman who had died from a suppurative gland. Inquiry revealed that this woman had formerly lived in Clichy, where she had served as the maid of a rag gatherer whose lodging was infested with rats. In the same house a young man had died, presumably from plague, after a month's illness. The maid, it seems, had caught a rat, and it was assumed that fleas from the animal had bitten her. She died from plague of septicemic type. From the Tenon Hospital, Dr. Rathery reported the death of a mother (together with her child), who had been admitted to treatment for a miscarriage. Just recently the husband also had died, affected with a suppurative adenitis in which the plague bacillus was found. Inquiry revealed further that the father had died suddenly from "strangulated hernia." The mother of the woman had died at about the same time from pulmonary congestion. All these fatalities had occurred in rag pickers. But all did not stop there. The daughter of the janitor developed a plague bubo. Also a niece of the first patients contracted the disease. The disease spread to a neighboring family, all of whom became affected. One child died, affected with a disease which was diagnosed as "grave purpuric measles." The child's father was taken later with pneumonia, with an affected axillary gland. Thus eighteen cases had developed in the same environment, and the disease had struck down those who had watched over the dead, doubtless having been bitten by fleas that had left the bodies of the victims.

Statistics covering this epidemic of plague show a total of ninety-three cases. By means of inoculations, the foci of infection were easily stamped out. There were fifteen cases of plague in 1921, a few sporadic cases in 1922, and seven cases in 1923. Cases of plague developed also in other cities, notably Marseilles, where in 1920 it claimed 100 victims.

Dr. Noir holds that the administrative authorities acted unwisely in concealing the epidemic, for ostrich tactics are hardly appropriate in the prophylaxis of contagious diseases.

Sewer Accidents

Several fatal accidents have resulted owing to the fact that substances emitting poisonous gases have been emptied into the sewers of Paris and of the department of the Seine. Possibly discarded war gases may have played a part. The authorities have issued an appeal to the population of this area and to the heads of industrial and commercial establishments to refrain from practices which jeopardize the lives of workmen employed in the sewers. Manufacturers of sulphur and sodium, tanneries, leather-dressing establishments, parchment makers and similar factories have been asked to refrain absolutely from emptying into the sewer even small quantities of sulphur solutions unless they have been previously diluted with an amount of water equal to 500 times the weight of the sulphur that they contain.

HOLLAND

(From Our Regular Correspondent)

Oct. 14, 1924.

Bureau of Information of the Red Cross

Colonel Leclercq has published a brochure on the activities of the bureau of information of the Netherlandic Red Cross Society during the Great War. Its activities were continued long after the cessation of hostilities; in fact, only recently has its work been brought to an end. The bureau consisted of six sections: (1) information on patients in the hospitals; (2) military and civilian interns; (3) effects of prisoners of war; (4) transportation of gifts to the prisoners of war; (5) exchange and repatriation of the severely wounded, and (6) refugees and transportation of liberated prisoners of war. These sections were abolished in 1919.

Since 1919, the bureau has continued to comply with requests for information in regard either to former interned persons desiring to vindicate their right to a government pension or to former interned persons who died in Holland.

Prisoners of war of Austrian and Turkish nationality, retained in Siberia up to 1920, corresponded with their families through the mediation of the bureau, and among those who remained voluntarily in the country there are some who still avail themselves of this privilege.

The Plague in Java

A statistical study covering the period from 1911 to 1923 has been recently published by L. Otten, director of the antiplague crusade in Java. During this twelve-year period, there have been 82,000 cases among a population of 35,000,000 inhabitants, or 2.3 per thousand. The cases are not evenly distributed over the whole country. There are some districts with a low incidence and others with a very high incidence. It is interesting to note that, contrary to the conditions that exist in other countries, the British East Indies, for example, the disease shows in Java no seasonal prevalence. This fact appears due to the greater equability of the climate and to the more stable hygrometric conditions. The best measure that has been used in the crusade against the development of the infection through rats seems to have been the improvement in housing conditions. Simultaneously, general measures for the extermination of rats and antiplague inoculations have been employed. As regards the latter measure, it should be stated that the mortality from plague among 40,000 vaccinated was 6.6 per thousand, whereas among the nonvaccinated it reached 13 per thousand.

Intoxication by Gas

Dr. Brocx, medical inspector of the Ryksverzekeringsbank, has published a comprehensive statistical study on intoxications by the various gases. His study covers the period from 1909 to 1918, during which, out of about 750,000 industrial accidents reported to the Ryksverzekeringsbank, there were 202 intoxications by gas. The greater part of the intoxications were caused by carbon monoxid (155), ammonia (ten) and combustion vapors of benzin (six). Of these 202 cases, twenty-five resulted fatally, of which seventeen were from carbon monoxid, two from ammonia and two from benzin. From the practical standpoint, he divides the cases into five groups, since for each of the groups different prophylactic measures are indicated. The five groups are: (1) cases arising in mines in connection with the use of explosives; (2) cases occurring in domestic ranges or near open grates; (3) cases resulting from combustion gases of motors; (4) cases developing in factories, lime kilns, etc., and (5) intoxications by illuminating gas. The writer emphasizes the urgent need of the adoption of special prophylactic measures against the menace to life presented by each of these groups.

Scurvy in Rotterdam

The *Nederlandsch Tijdschrift voor Geneeskunde* reports that Dr. Kramer has observed in Rotterdam four cases of an affection characterized by gingival and subcutaneous hemorrhages, pains in the muscles and tendons, general weakness and diminished mobility. The writer has diagnosed the condition as scurvy. Questioning of the four patients elicited the information that their diet had been restricted for several months. One of them had eaten nothing but bread for fifteen months. The usual treatment, consisting of a vegetable diet, with orange or lemon juice, gave excellent results. It is evident, then, that scurvy is not a disease of the past.

The Application of Public Health Measures in Java

The plain of Tjihea, which, about the middle of the nineteenth century, was artificially irrigated with a view to extending rice culture, had become, owing to the bad conditions arising from irrigation, a vast area of malarial infection. In a recent sanitary bulletin from the Dutch East Indies, Mangkoewinoto gives the history of this infected zone and of the campaign undertaken by the health authorities to eradicate the infection. The work consisted in the drying of the rice fields after the harvest, the systematic cleaning of the irrigation canals, and the extensive use of quinin among the population. The results of this campaign have been good. The mortality among this population, which in 1912 and 1913 ranged from 40 to 58 per thousand, has fallen to 21 per thousand.

CITY OF MEXICO

(From Our Regular Correspondent)

Oct. 1, 1924.

Venereal Congress

The first Mexican Venereologic Congress was held in Mexico City, September 20-26, under the auspices of the departments of education and war and navy, and the public health bureau. The meeting proved a great success, and more than 150 delegates attended. There were six sections, presided over, respectively, by Drs. A. B. Vasconcelos, Francisco Bulman, R. E. Cicero, Mr. Agustín Aragón, Dr. Alberto Román and Mr. B. Menéndez Acebal. Among prominent features of the meeting were the practical courses in laboratory methods and urethrocystoscopy in the Army Hospital and the illustrated popular conferences. The congress was presided over by Dr. Francisco Castillo Nájera, the director of the Army General Hospital. The next meeting will be held in 1926. Dr. A. Brioso Vasconcelos was appointed president, and Dr. Salvador Iturbide Alvirez, Av. Palacio Legislativo, No. 43, Mexico City, secretary.

Academy of Medicine

The National Academy of Medicine began its fifty-ninth year of existence, October 1. As provided by its rules, the former vicè president, Dr. Fernando Ocaranza, assumed the presidency. At the regular election, Dr. Francisco Bulman of the section of therapeutics was elected vice president, and Dr. I. Espinosa de los Reyes, secretary.

Death of Prof. Diaz Lombardo

The death of Prof. Germán Diaz Lombardo, president of the National Academy of Medicine, has been announced. He was professor of urology, and enjoyed much favor in social and scientific circles. He was also originator of a method for decortication of the prostate, which was discussed at a congress in Paris in 1908.

Personal

Dr. Jenaro Escalona has been appointed director of the General Hospital. This is the first appointment made by the new independent board placed by the president in charge of all public welfare matters in the Federal District.——Dr. F. Castillo

Nájera, former Mexican minister to China, has been entrusted with a diplomatic mission in Europe. After visiting Germany, he will proceed to other Old World countries.——Dr. Enrique González Martínez, well known as a poet, has been appointed Mexican representative at Madrid, following his holding similar positions in Chile and Buenos Aires.——Dr. Alberto Lozano Garza, professor of the Army Medical School, has returned after attending a criminologic congress in Salt Lake City.

BERLIN

(From Our Regular Correspondent)

Oct. 4, 1924.

The Surgery of Brain Tumors

Before the Münchener aerztliche Verein, Professor Sauerbruch, director of the surgical clinic, discussed recently the surgery of brain tumors. Sauerbruch has not seen many favorable results from the surgical treatment of brain tumors —only in seven cases was the radical operation possible. The difficulty in diagnosis is not so great as is commonly supposed; for, in 75 per cent. of all cases, at least the diagnosis "tumor" can be reached, and in 30 per cent. of the cases more exact localization is possible. The operation itself is possible today without great technical difficulties; but the after-effects of the operation on the brain and the patient may be serious. When the skull is opened, paralysis of the heart or of respiration may occur, owing to the sudden change of pressure. Meningitis as the result of the operation can be prevented absolutely. Circulatory disturbances, with increase of brain pressure, occur; especially if the operative opening is too small, the brain becomes pressed into the opening, and local brain pressure is added to the general pressure. Since in patients with brain disease the reflexes are frequently absent, for example, the deglutition reflex, deglutition pneumonia may easily develop. Compared with other operations, as, for example, of the abdominal cavity, a survey of the operative field, owing to the relatively small operative opening, is much less comprehensive, and differences in consistency can be recognized only through palpation, which is a difficult matter. Furthermore, the severe hemorrhage occurring when the skull is opened—often as soon as the scalp is cut through—and likewise after the opening of markedly gorged veins, has a disturbing influence; and there is a great difference between a cyst that is circumscribed and easily extirpated and a glioma with a very diffuse growth. Early diagnosis by roentgenologic methods cannot always be depended on. Sauerbruch has no confidence in pneumoventriculography. Puncture by the Neisser method he rejects because of the bad sequels, for, frequently, fatal hemorrhagic infarction of the brain and also injuries of the middle meningeal artery, with hematoma formation, have been observed. It must be remembered that the puncturing needle strikes only a very small portion of the brain, and that, for this reason, punctures have to be made often and at many different sites, which is injurious to the brain. As for the question whether the operation should be in one or two stages, it should be noted that, in the two-stage operation, the acute fluctuations in pressure are avoided; but it has the disadvantage that the granulation tissue which develops after the first stage, obscures to a great extent the survey of the operative field. As to exploratory craniotomy, after the manner of exploratory laparotomy, it may be said that the danger of meningitis is very slight and that only the menace of a fatal outcome resulting from increased brain pressure need be considered. The high brain pressure is found, however, almost exclusively associated with large and malignant tumors, which usually end fatally.

Public Health Measures in the Prussian Schools

In 1911, the Prussian government instituted a survey of the medical examination of pupils in the schools of Prussia. It was found that of 52,614 communal units (cities, small towns, village and rural districts) only 2,150 were provided with school physicians, one out of twenty-six.

Up to 1911, the state had avoided extending its influence with regard to providing school physicians beyond its right of general supervision. The statistical survey of 1911 was the first evidence of any great interest on the part of the state in this manifestation of public health control, but, during the following years, comprehensive negotiations with the state authorities concerned were begun. As a result, a model school examination service was agreed on, together with a uniform health record card.

A new inquiry into the status of school medical examinations in Prussia, which was instituted in 1921 at the request of the minister of finance (ten years after the first survey), yielded these facts: Of 43,712 school districts in Prussia (8,902 of which had been ceded, in the meantime, to other countries), 5,712 had provided regular medical examinations for school children; that is, in 1921, one district out of eight had a school medical examiner. Of a population of approximately 38,000,000, the school children of 24,000,000 inhabitants enjoyed the advantages of school medical examinations; the other 14,000,000 denied their school children such benefits. There were 172 full-time and 2,356 part-time school physicians employed, or a total of 2,528, of whom 162, or 6.7 per cent., were county physicians or assistant county physicians; that is, one third of the county physicians took part in the inspection of schools. The inquiry revealed further that in Prussia there were twenty-two out of 332 cities with 10,000 population that had no medical inspection of schools. Since the inquiry was made, six of these cities have provided for such inspection.

In order that the state might further the introduction of medical inspection of schools, and facilitate its adoption especially in the sixteen cities of 10,000 population in which it was lacking, the budget of 1923 provided a fund of 3,000,000 marks. Of this sum, 20 per cent., or 600,000 marks, was to be employed for the promotion of dental care of school children.

In consequence of the constant fall in the birth rate, the numbers of the oncoming generation are being reduced. The deprivations of the war period have weakened the constitutions of the children, and the economic distress together with the high prices of foods makes them especially susceptible to disease. The poverty of the people forbids or delays the calling in of the physician when needed. Soon the school physician will be the only medical adviser for large numbers of our school children. For these reasons, the need of a law regulating medical inspection in the schools of Prussia is urgently felt.

Marriages

SIDNEY S. LISTERNICK, Everett, Mass., to Miss Beula Evelyn Savage of Fearer, Md., at Philadelphia, July 26.

THEODORE HILGARD ROMEISER to Mrs. Marie C. Kluthe, both of St. Louis, September 11, at Chicago.

MAURICE FISHMAN, Lowell, Mass., to Miss Gertrude Seigel of Winnipeg, Ont., Canada, recently.

WILLIAM A. SPOECKS, Davenport, Iowa, to Miss Madelyn Moore of Philadelphia, August 23.

MARTIN H. HOFFMANN, Dyersville, Iowa, to Miss Margaret Bosley of Detroit, October 1.

PIERCE MACKENZIE to Miss Ann Dorothy Hardigg, both of Evansville, Ind., October 9.

EARL LEROY WOOD, Newark, N. J., to Miss Flora Assmann of East Orange, October 9.

CARL JAY YEISLEY, Port Clinton, Ohio, to Miss Adda Logue of Bradner, September 29.

HENRY C. TELFORD to Miss Julia C. Anschicks, both of Ottawa, Ill., August 11.

Deaths

Lauren Haynes Buxton, Oklahoma City; University of Vermont College of Medicine, Burlington, 1884; formerly secretary of the Oklahoma State Medical Association; emeritus professor of otology, rhinology and laryngology, University of Oklahoma School of Medicine, Oklahoma City; formerly on the Guthrie Board of Education and city council; state superintendent of public health, 1898-1902; secretary of the state board of medical examiners and president of the Oklahoma Insane Commission, 1897-1901; aged 65; died, October 4, at Long Beach, Calif.

Alexander Covington Magruder ⊕ Colorado Springs, Colo.; Medical Department of the Tulane University of Louisiana, New Orleans, 1900; past president of the Colorado State Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology and the Colorado Opthalmological Society; member of the school board; served in the M. C., U. S. Army, during the World War; aged 57; died, October 12, following an operation.

Archibald MacLaren ⊕ St. Paul; Medical Department of Columbia College, New York, 1883; president of the Minnesota State Medical Association, 1923-1924; member of the American Surgical Association, and the Western Surgical Association; professor of surgery, University of Minnesota Medical School, Minneapolis; on the staffs of the University and St. Luke's hospitals; aged 66; died, October 12, of heart disease.

Phillips Adams Lovering ⊕ Captain, U. S. Navy, retired, St. Helena, Calif.; Medical School of Harvard University, Boston, 1875; appointed assistant surgeon, 1875; retired from active service, 1913; formerly in command of the Naval Hospital, Norfolk, Va., and the Naval Hospital, Mare Island, where he died, September 30, aged 73.

John Alexander Mackinnon ⊕ Seattle; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1879; L.R.C.P. and R.C.S., England, 1894; member of the Pacific Coast Oto-Ophthalmological Society and the Puget Sound Academy of Ophthalmology and Oto-Laryngology; aged 67; died, July 7, of multiple sclerosis.

Israel Dayton Garrigues, Brookville, Ind.; Medical College of Ohio, Cincinnati, 1891; past president of the Franklin County Medical Society; aged 68; died, October 4, at the Christ Hospital, Cincinnati, of carcinoma of the pancreas and intestinal obstruction.

Andrew James Halpin ⊕ Lowell, Mass.; Medical School of Harvard University, Boston, 1889; past president of the Middlesex North District Medical Society; member of the American Urological Association; aged 60; died, October 10, of coronary thrombosis.

William Jones Kernachan, Florence, Ala.; Vanderbilt University Medical Department, Nashville, Tenn., 1880; Spanish-American War veteran; formerly county health officer; aged 65; died suddenly, October 10, of heart disease.

Lee Weber ⊕ Davenport, Iowa; University of Illinois College of Medicine, Chicago, 1895; specialized in ophthalmology, otology, laryngology and rhinology; aged 54; died suddenly, October 15, of heart disease.

John F. Thompson, Newcastle, Ind.; Cleveland (Ohio) University of Medicine and Surgery, 1875; for four years postmaster of Newcastle; formerly secretary of the city board of health; aged 73; died, October 10.

Theodore Alexander McGraw, Jr. ⊕ Detroit; Columbia University College of Physicians and Surgeons, New York, 1902; served during the World War; aged 49; died, October 14, of sepsis.

Walter Warren Cram, Sheldon, Iowa; State University of Iowa College of Medicine, Iowa City, 1921; aged 37; died, October 13, of a self-inflicted bullet wound, while suffering from ill health.

Barton Foote Andrews, Mount Morris, N. Y.; Baltimore (Md.) Medical College, 1906; past president of the Livingston County Medical Society; aged 47; died, October 3, following a long illness.

Nandy C. Williams, Springfield, Mo.; Barnes Medical College, St. Louis, 1894; aged 64; died, October 7, at St. John's Hospital, of a self-inflicted bullet wound while suffering from ill health.

Luther Kemp, Uniontown, Md.; University of Maryland School of Medicine, Baltimore, 1887; member of the Medical and Chirurgical Faculty of Maryland; aged 62; died, October 7.

Ezra L. Edmundson, Brighton, Ala.; University of Nashville (Tenn.) Medical Department, 1872; formerly mayor of Brighton; aged 71; died, October 1, following a long illness.

Charles W. Pfeifer, Sheboygan Falls, Wis.; Rush Medical College, Chicago, 1885; postmaster of Sheboygan Falls; aged 66; died, October 3, following an operation.

Watson Emmons Rice ⊕ Stamford, Conn.; University of Michigan Medical School, Ann Arbor, 1872; member of the school board; aged 76; died, October 6.

John Reese Brooks, Agricola, Ga.; University of Georgia Medical Department, Augusta, 1881; aged 57; died, October 6, at Augusta, following a long illness.

Finis E. Bozarth, Emma, Ill.; Medical College of Evansville, Ind., 1881; aged 69; died, October 4, at the Anna (Ill.) State Hospital, of arteriosclerosis.

Norman S. Craig ⊕ Jennings, La.; Rush Medical College, Chicago, 1871; Bellevue Hospital Medical College, New York, 1875; aged 76; died, October 7.

Wilbur L. Walraven, Charles Town, W. Va.; University of Maryland School of Medicine, Baltimore, 1890; aged 63; died, August 8, of diabetes.

Gustav W. Kaufmann ⊕ Evanston, Ill.; St. Louis (Mo.) College of Physicians and Surgeons, 1890; aged 63; died, October 21, of heart disease.

Edward Roland Cutler, Newton, Mass.; Medical School of Harvard University, Boston, 1863; Civil War veteran; aged 83; died, September 24.

Jack Winton Brown, Las Animas, Colo.; St. Louis (Mo.) University School of Medicine, 1905; aged 49; died, October 2, of chronic nephritis.

Silas Randall Cowger, Monticello, Ind.; Eclectic Medical Institute, Cincinnati, 1879; aged 77; died, October 12, following a long illness.

Eugene Herbert Townsend ⊕ New Lisbon, Wis.; University of Vermont College of Medicine, Burlington, 1876; aged 73; died in October.

John Powell Lapsley, Shelbyville, Ky.; Hospital College of Medicine, Louisville, 1890; aged 55; died, October 8, of cerebral hemorrhage.

William Dean Mansfield, Columbus, Ohio; Physio-Medical Institute, Cincinnati, 1875; aged 82; died suddenly, October 3, of heart disease.

Rosalie Stankowitch Pierson, Pleasantville, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1890; aged 66; died, June 9.

John O. Lea, North Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1906; aged 43; died, September 12.

William J. Patton, Blossom, Texas; Louisville (Ky.) Medical College, 1894; aged 63; died, July 25, of cerebral hemorrhage.

Thomas W. Loweree, Newark, N. J.; Medical Department of Columbia College, New York, 1865; aged 82; died, September 23.

Oscar L. Howard, Lake Charles, La.; Barnes Medical College, St. Louis, 1893; aged 64; died, September 3, of angina pectoris.

Walter H. Steel, Newark, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1897; aged 53; died in October.

Dennis W. Flowers, Fannin, Miss.; University of Tennessee College of Medicine, Memphis, 1891; aged 61; died, September 4.

Frank E. Brown ⊕ Milwaukee; Hahnemann Medical College and Hospital, Chicago, 1891; aged 64; died, October 10.

Morton P. Williams, Garden City, Kan.; Kentucky School of Medicine, Louisville, 1876; aged 80; died in October.

Tom R. Kelley, Olanta, S. C.; College of Physicians and Surgeons, Baltimore, 1883; aged 59; died, October 6.

Richard T. Colliver, Bainbridge, Ind.; Eclectic Medical Institute, Cincinnati, 1882; aged 76; died, October 12.

Louis C. Bickford, Oshkosh, Wis.; Medical School of Maine, Portland, 1895; aged 53; died, September 16.

Theodore Doyle, Kansas City, Mo.; American Medical College, St. Louis, 1876; aged 78; died, October 3.

Stephen W. Fielder, Fries, Va.; aged 75; died, August 28, of cerebral hemorrhage.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

B. PAUL'S HENNA AND LIQUID HAIR DYES

Two More Hair Dyes Sold Under False and Misleading Claims

Hair dyes and other cosmetics for which no specific curative claims are made, do not come within the purview of the National Food and Drugs Act. As a result, there is as much falsehood and misrepresentation in the cosmetic business today as there used to be in the "patent medicine" business before the advent of the Pure Food Law. No effort seems to be made by the federal authorities to control even the crudest and most fraudulent of statements made for nostrums that belong in the cosmetic class.

Two hair dyes are put out by one Paul Balme, who does business in New York City under the name "B. Paul." One of these dyes is known today as "B. Paul's Henna" and is a powdered mixture. The other, put out by the same man, is called "B. Paul's Liquid Mixture." The stuff that is now known as "B. Paul's Henna" was sold by Balme for some years as "Henna d'Oreal," an alleged "New French Discovery" described as "La Plante Merveilleuse." In April, 1922, Paul Balme was ordered by the Federal Trade Commission to cease using the word "Oreal" and also the phrase "La Plante Merveilleuse," as both of these terms had been in use for some years before Balme put his hair dye on the market by another concern also in the hair dye business.

"B. Paul's Henna."—This comes in a tin can on which appears the following claims:

"Nature's Hair Regenerator"
"The Wonder Herb, Nature's Hair Restorer"
"B. Paul's Henna is a powdered preparation composed of pulverized henna and herbs which will color gray hair to any one of our fourteen different shades"

The can is about seven-eighths filled with a yellowish powder. There is also a small envelope of oil paper containing a white powder and labeled "B. Paul's Developer: to set the shade." The directions with "B. Paul's Henna" are that the hair must first be washed and left damp. Then the powder is to be made into a thick paste with boiling water. This pasty mess is then applied to the hair and left on for a time varying from thirty minutes to two hours, according to the depth of shade required. After the application, the hair is to be rinsed until all the paste is out and then rerinsed in a solution made by dissolving the white powder labeled "B. Paul's Developer." The hair then is to be shampooed again.

A specimen of "B. Paul's Henna" purchased on the open market was turned over to the A. M. A. Chemical Laboratory with the request for information regarding its composition. Here is the laboratory report:

LABORATORY REPORT

"An original can of 'B. Paul's Henna' prepared by B. Paul New York, was submitted to the American Medical Association Chemical Laboratory for examination. The can contained a paper bag containing 117 gm. of a yellow powder; also a small sealed, oiled-paper package containing four grams of white crystalline material.

"Yellow Powder.—Qualitative tests indicated the presence of iron, copper, sulphate, pyrogallol and vegetable matter. Quantitative determinations yielded the following results:

Iron (Fe^{+++})	6.8 per cent.
Copper (Cu^{++})	3.32 per cent.
Pyrogallol	3.86 per cent.
Ash	19.88 per cent.

"White Powder.—This material appeared to be sodium perborate ($NaBO_3.4H_2O$), with a trace of sodium carbonate. Quantitative determinations showed boron 7.27 per cent. and available oxygen 9.59 per cent. These are in close agreement with the theoretical amounts for sodium perborate, *i. e.*, boron 7.09 per cent. and available oxygen 10.39 per cent.

"From the foregoing it may be assumed that B. Paul's Henna is (1) a powder consisting essentially of dried plant leaves, pyrogallol and iron and copper compounds, and (2) a second package containing sodium perborate, a substance, which, when treated with water, yields hydrogen peroxid."

The whole trend of the advertising is to lead the public to believe that "B. Paul's Henna" is purely herbal. As a matter of fact, when examined in the Association's chemical laboratory, the stuff was found to contain, in addition to the powdered herbs, iron, copper and pyrogallol, while the "developer" sold as an accessory was found to be sodium perborate. As for its alleged harmlessness, neither pyrogallol nor copper salts are innocuous. Germany is said to prohibit the use of copper salts in hair dyes.

B. Paul's Liquid Mixture.—As has been mentioned, B. Paul, in addition to putting out a powdered hair dye, also puts one out in liquid form. The liquid preparation is advertised in the circular of directions for the use of "B. Paul's Henna." The liquid product is said to be especially adapted "for touching up the roots near the scalp" and is recommended to those who do not care to use a paste form of hair dye but prefer a liquid. The circular also has this to say about "B. Paul's Liquid Mixture":

"This coloring is superior to any liquid dye on the market and is absolutely harmless, being a vegetable compound."

Comparatively few claims other than those just quoted are made for B. Paul's Liquid Mixture. A circular that comes with the trade package gives directions for its use. These are to the effect that the liquid contained in the bottle marked "A" (it is a two-liquid preparation) is to be applied to the hair thoroughly and allowed to dry. Then the liquid contained in the bottle marked "B" is similarly applied. In order to obtain information regarding the composition of "B. Paul's Liquid Mixture" an original package of this alleged "vegetable compound" was purchased and turned over to the A. M. A. Chemical Laboratory for investigation. The laboratory report follows:

LABORATORY REPORT

"An original sample of 'B. Paul's Liquid Mixture for Coloring Gray Hair' was submitted to the American Medical Association Chemical Laboratory for analysis. The mixture was contained in two brown bottles labeled 'A' and 'B,' respectively, and each containing 95 c.c. (approximately 3 fluid ounces).

"Bottle 'A.'—This contained a dark blue liquid of ammoniacal odor. Qualitative tests indicated the presence of copper, ammonia, sulphate, and a trace of iron. The specific gravity of the liquid in Bottle 'A' was 1.004. The amount of solids present found was 0.90 per cent. and the amount of ash was 0.19 per cent. Quantitative determinations were as follows:

(Cu^{++})	.23 per cent.
(SO_4^{--})	.41 per cent.
(NH_3)	.43 per cent.
Water (by difference)	98.93 per cent.
	100.00 per cent.

"The product is essentially a solution of the well known cupric ammonium sulphate made by treating a solution of cupric sulphate with ammonia water. A solution similar to solution 'A' could be made by dissolving 1 gm. of commercial copper sulphate ("blue vitriol") in 90 c.c. of water and adding 4 c.c. of ammonia water, U. S. P.

"Bottle 'B.'—This appeared to be a solution of pyrogallol which had undergone some decomposition. The specific gravity of the solution was 1.029. Quantitative estimations were as follows:

Pyrogallol	9.67 per cent.
Decomposition products	0.95 per cent.
Loss in weight (at 100 C.)	88.53 per cent.
Difference	0.85 per cent.
	100.00 per cent.

"A solution similar to Solution 'B' could be made by dissolving 11.2 gm. pyrogallol in sufficient water to make 95 c.c."

Again the findings of the chemists disagree with the claims made by the exploiter. B. Paul's Liquid Mixture is neither a vegetable compound nor "absolutely harmless."

Correspondence

STANDARDIZATION OF SCARLET FEVER PREPARATIONS

To the Editor:—Many questions are being asked regarding scarlet fever preparations on the market. By cooperation with the United States Hygienic Laboratory, we believe that we have made it possible for commercial firms to place on the market potent and properly standardized scarlet fever toxin and concentrated scarlet fever antitoxin.

Whether or not any specified product meets the requirements that we suggested for these materials can probably be learned by inquiring of the Hygienic Laboratory of the U. S. Public Health Service. We cannot advise the use of any materials produced or standardized by other methods. Some such products are already on the market, but we have no first hand knowledge of their value, and no information as to the methods by which they were produced or standardized.

The need for careful standardization of the toxin is shown by the fact that any error in the skin test dose might be multiplied from 500 to 2,000 times in the immunizing dilutions. This is one of the reasons we had for suggesting a number of checks on the standardization of each batch of toxin before it is released.

Unconcentrated antistreptococcic serums for use in scarlet fever have been on the market for a number of years. The physician should inform himself as to whether any serum he contemplates using is an unconcentrated antistreptococcic serum or a concentrated scarlet fever antitoxin.

George F. Dick, M.D., Chicago.

AN APPEAL FOR ENUCLEATED HUMAN EYES

To the Editor:—Under date of June 2, 1922, I received from Major George R. Callender, curator of the Army Medical Museum, Washington, a letter of which the opening sentence follows:

> Through conversation and letters of Dr. G. E. de Schweinitz, I have found out about your fine collection illustrating the anatomy and the diseases of the eye, and also of the possibility that you might be willing to present the collection to the Army Medical Museum to be placed in the section set apart for diseases of the eye.

My answer was the immediate surrender of a museum which is the result of thirty years of work in ophthalmology. This has been donated without a dollar of expense to the government, and has been given "summa cum laetitia"—with great joy—to use the words of Fabricius when he observed the valves in the veins for the first time.

For this ophthalmic museum I have suggested the following divisions: (1) pictorial items; (2) gross dissections (of normal structures) and gross pathology (enucleated eyes); (3) microscopic items; (4) ophthalmic armamentarium, and (5) rare ophthalmic literature.

A plan so ambitious must require time, and the active cooperation of the organized profession. Up to date, this much has been accomplished:

1. Of the 1,000 items visualized for Division 1—pictorial—nearly 960 have been mounted, forwarded and installed in the Army Medical Museum, Seventh and B streets, S.W., Washington, where they are available for study.

2. The gross dissections and enucleated eyes are being mounted by technicians as rapidly as the shorthandedness of the institution will permit.

3. A few items belonging to other divisions have been forwarded.

My thanks are due Mr. E. Treacher Collins of London for the donation of colored pictures of numerous rare ophthalmic diseases; and, in our own country, some of the most valuable contributions have come from Dr. J. Ellis Jennings of St. Louis, who is noted for his skill in portraying diseased eyes.

What has been written is a prelude to this request: That specialists, surgeons and general practitioners—all of whom, at times, perform enucleations—kindly preserve these specimens; and forward them, with proper data, to The Curator, Army Medical Museum, Seventh and B streets, S.W., Washington, D. C. Such specimens should be immersed, not in alcohol, but in a formaldehyd solution, preferably that of Kaiserling (solution of formaldehyd, 750; distilled water, 1,000; potassium nitrate, 10; potassium acetate, 30).

It is believed that, in the near future, there will be found in Washington the largest and the most useful ophthalmic museum in existence.

In conclusion, I wish to express my deep sense of gratitude for the courtesies extended, and for the cooperation given by Major Gen. M. W. Ireland, the surgeon general of the U. S. Army, by Major George R. Callender, by Major James F. Coupal, and by the technicians of the Army Medical Museum.

James Moores Ball, M.D., St. Louis.

AUTOGENOUS, HOMOGENOUS OR HETEROGENOUS GRAFTS

To the Editor:—I am interested in settling the question of the value of any other kind of graft of organs or skin than autogenous grafts. Homogenous or heterogenous grafts are seldom, if ever, successful. This makes grafting of heterogenous testes, in rejuvenation operations, useless.

Will any surgeon who has performed homogenous or heterogenous graftings of skin or other organs kindly report positive or negative results as to whether or not the grafts were successful. Is it ever worth while grafting the skin from another individual?

Replies will be tabulated and published.

Clarence A. McWilliams, M.D.,
19 East Sixty-Fifth Street,
New York.

THE HARRISON NARCOTIC LAW

To the Editor:—The medical profession has ever stood behind the government in the attempt to enforce all legislation that was beneficial to the public at large. It has endorsed the Harrison Narcotic Law because it felt that its general provisions were for the public good.

This act, however, contains a number of petty and annoying regulations through which the medical profession may be harassed from time to time. The act seems to regard members of this profession as potential miscreants who, in order to be kept good, must be disciplined. I have received this notice from the Narcotic Division of the Philadelphia District: "On account of your failure to register your removal in this office within thirty days after removal occurred, you have incurred an additional tax effective from the first day of the month during which the removal occurred to the end of the fiscal year, amounting to $2.75, plus the 25 per cent. penalty of $0.69, making a total tax and penalty due this office of $3.44."

Have physicians so much spare time that they are supposed to peruse minutely and remember the detailed and insignificant regulations of this act? Apparently they are obliged to notify the Narcotic Division of removal of office within thirty days or else be subjected to a fine. To what end? Why this rigid domiciliary surveillance of the medical profession? The amount of the fine in this instance is trivial, but it appears to me that some of the provisions of this act with respect to the duties of physicians constitute a sort of meticulous tyranny. Men whose lives are devoted to

the healing of the sick should not be subjected to petty annoyances unless there is evidence of bad faith.

It appears to me that the medical profession should make its voice heard with respect to such matters as these.

JAY F. SCHAMBERG, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF CHANCROID—FOOD VALUE OF CEREALS—OVULATION AND MENSTRUATION

To the Editor:—1. What is the approved treatment for chancroid? 2. Is there any definite difference between the food value of whole wheat, oats (rolled) and cracked corn and corn meal? 3. Is there any new, conclusive evidence as to the relation of ovulation to menstruation; and as applied to the management of functional sterility, what is the most favorable time in the menstrual cycle for conception to take place?

M. VAN CLEVE, M.D., Macomb, Ill.

ANSWER.—1. The treatment of chancroid is described in the following references, the starred ones of which may be borrowed from the Association Library:

Baliña, P. L., and Quiroga, M.: Tuberculin Treatment of Serpiginous Chancroid, *Sem. Méd.* **1**: 153 (Jan. 24) 1924; abstr. THE JOURNAL, March 15, 1924, p. 929.

* Stümpke, G.: Chancroid Vaccine, *Deutsche med. Wchnschr.* **47**: 1331 (Nov. 3) 1921.

Michael, W. H.: Treatment of "West Indian Chancroid," *U. S. Nav. M. Bull.* **15**: 412 (April) 1921.

Pearce, W. F.: Treatment of Chancroidal Infections, *U. S. Nav. M. Bull.* **15**: 554 (July) 1921.

Morrissey, P. G.: Treatment of Chancroid, *J. Tennessee M. A.* **13**: 333 (Jan.) 1921.

Jacob, L. H.: Treatment of Chancroid with High Frequency Vacuum Electrode and Copper Sulphate Solution, *Arch. Dermat. & Syph.* **1**: 434 (April) 1920.

* Mergelsberg: Quick Cure of Chancroid with Zinc Chlorid, *München. med. Wchnschr.* **67**: 748 (June 25) 1920.

* Golay, J.: Injection of Petrolatum in Chancroids by Method of Fontan, *Rev. méd. de la Suisse Rom.* **40**: 485 (Aug.) 1920.

Robbins, F. W., and Seabury, F. P. Treatment of Chancroid, THE JOURNAL, Oct. 13, 1917, p. 1217.

2. Oats, Hutchinson states, are the most nutritious of all cereals. Oats contain 38 per cent. starch, and the nitrogenous matter is 94 per cent. in the form of protein. Corn is an economical food. If maize and wheat were both selling at the same price per bushel, one would get the same amount of digestible material in the two for a given sum. However, most of this in the case of wheat would be in protein, and in the case of corn in carbohydrate.

3. George W. Corner, in *Physiological Reviews* (**3**:457 [Oct.] 1923), discusses the relationship of ovulation and menstruation.

BILIRUBIN IN BLOOD

To the Editor:—Please give me the details of the Van den Bergh test for liver function.

CHARLES G. BEALL, M.D., Fort Wayne, Ind.

ANSWER.—Van den Bergh's test for bilirubin in the blood plasma makes use of Ehrlich's diazo reagent; the latter should be freshly made by mixing 25 c.c. of Solution 1 with 0.75 c.c. of Solution 2. One gram of sulphanilic acid, 15 c.c. of hydrochloric acid, U. S. P., and 1 liter of distilled water constitute Solution 1: 0.5 gm. of sodium nitrite in 100 c.c. of distilled water makes Solution 2. After the addition of 1 c.c. of the diazo reagent to 1 c.c. of blood plasma, in from ten to thirty seconds the maximum bluish-violet color appears. Only uncombined bilirubin gives this color reaction, which indicates that there is obstructive jaundice. If a reddish color appears in from one to fifteen minutes, gradually deepening, the liver function is considered impaired.

If this test gives no color, the indirect reaction is tested for. One cubic centimeter of blood plasma is mixed with 2 c.c. of 96 per cent. alcohol. A precipitate is formed. Of the clear supernatant fluid, 1 c.c. is used, 0.25 c.c. of Ehrlich's diazo reagent being added. If an immediate red-violet color appears it is due to bilirubin, which had been bound in the blood protein, and signifies a hemolytic jaundice.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 11-12. Sec., Regular Board, Dr. J. W. Walker, Fayetteville. Sec., Homeopathic Board, Dr. George M. Love, Rogers. Sec., Eclectic Board, Dr. C. E. Laws, Fort Smith.

CONNECTICUT: New Haven, Nov. 11. Sec., Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: Hartford, Nov. 11-12. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford.

DELAWARE: Wilmington, Dec. 9-11. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

KENTUCKY: Louisville, Dec. 9. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

MAINE: Portland, Nov. 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MARYLAND: Baltimore, Dec. 9-12. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

MASSACHUSETTS: Boston, Nov. 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

MISSOURI: Kansas City, Nov. 10-13. Sec., Dr. Cortez F. Enloe, Capitol Bldg., Jefferson City.

NEBRASKA: Lincoln, Nov. 18-20. Supt., Dr. J. D. Case, State House, Lincoln.

NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

OHIO: Columbus, Dec. 10-12. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

SOUTH CAROLINA: Columbia, Nov. 11. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Dallas, Nov. 18-20. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 720 Anchor Bldg., Roanoke.

Arkansas May Examination

Dr. J. W. Walker, secretary, Arkansas Board of Medical Examiners, reports the written examination held at Little Rock, May 13-14, 1924. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Twenty-three candidates were examined, all of whom passed. Ten candidates were licensed by reciprocity. The following colleges were represented:

PASSED			
College	Year Grad.		Per Cent.
University of Arkansas	(1912)	78.9, (1924, 10)	77.1, 80.3, 80.4, 82, 82, 83.8, 84, 88, 94.2, 96.9
Hospital College of Medicine, Louisville	(1898)		80.3
University of Louisville	(1909)	76.4, (1910)	80.3
Meharry Medical College	(1923)		78.7
Memphis Hospital Medical College	(1902)	80.5, (1903) (1909) 79.8, 80.6, (1912) 76.8	80.5,
University of Tennessee	(1892)	80.3, (1915)	80.7
Vanderbilt University	(1893)		80.3

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1904)	Oklahoma
Northwestern University	(1923)	Mississippi
University of Illinois	(1918)	Illinois
Medical College of Indiana	(1896)	Illinois
Tulane University	(1921)	Louisiana
Harvard University	(1905)	California
Chattanooga Medical College	(1903)	Alabama
Meharry Medical College	(1922)	Tennessee
University of Nashville	(1903)	Louisiana, (1908) Mississippi

Minnesota June Examination

Dr. Thomas McDavitt, secretary, Minnesota Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 3-5, 1924. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Fifty-one candidates were examined, all of whom passed. Ten candidates were licensed by reciprocity. The following colleges were represented:

PASSED			
College	Year Grad.		Per Cent.
Stanford University School of Medicine	(1924)		90.9
Loyola University School of Medicine	(1918)		83.6
University of Minnesota	(1923, 3)*	87.3, 89, 90.9, (1924, 3) 86.3, 88.9, 93.3, (1924, 39)* 85.4, 86.2, 86.4, 86.5, 86.6, 87.3, 87.4, 87.5, 88, 88.2, 88.2, 88.4, 88.6, 88.6, 88.8, 89.1, 89.2, 89.6, 89.6, 89.6, 89.7, 89.8, 90.1, 90.1, 90.1, 90.2, 90.2, 90.4, 90.4, 90.5, 90.5, 90.7, 90.7, 91, 91.2, 91.3, 91.4, 92.1, 94.4	
McGill University Faculty of Medicine	(1923)		84
University of Innsbruck, Austria	(1919)**		82.2
University of Kiel, Germany	(1919)		84.6
University of Zurich, Switzerland	(1918)**		85.7

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Chicago Homeopathic Medical College	(1900)	Iowa
Northwestern University Medical School	(1902)	Alabama

Rush Medical College	(1920), (1923)	Illinois
State University of Iowa College of Medicine	(1919)	Iowa
University of Michigan Medical School	(1922)	Michigan
Creighton Medical College	(1923)	Nebraska
Omaha Medical College	(1899)	S. Dakota
University of Virginia	(1922)	Virginia
Western University Medical School	(1909)	N. Dakota

* These candidates have received their M.B. degrees, and will receive their M.D. degrees on completion of a year's internship in a hospital.

** Graduation not verified.

Book Notices

ALLEN'S COMMERCIAL ORGANIC ANALYSIS. A Treatise on the Properties, Modes of Analysis, and Proximate Analytical Examination of the Various Organic Chemicals and Products Employed in the Arts, Manufactures, Medicine, Etc., with Concise Methods for the Detection and Estimation of Their Impurities, Adulterations, and Products of Decomposition. Volume 2: Fixed Oils, Fats and Waxes, Special Characters and Methods, Butter Fat, Lard, Linseed Oil, Higher Fatty Acids, Soap, Glycerin, Wool-fat, Cloth Oils, Sterol Alcohols. Edited by Samuel S. Sadtler, S.B.; Elbert C. Lathrop, A.B., Ph.D., and C. Ainsworth Mitchell, M.A., F.I.C., Editor of the Analyst. Fifth edition. Cloth. Price, $7.50. Pp. 807, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1924.

Many of the fixed oils are used in medicine, and some of them, such as cod liver, castor and chaulmoogra oils, are of great value in therapy. The discussions in this volume include the general properties of fixed oils and fats, their sources, methods of extraction, constitution and chemical properties, classification and identification, color tests, and methods of analysis. The substances are considered by groups, such as the olive oil group, the castor oil group and the tallow and butter group. Each oil is then considered separately, and the information needed by the analyst and technologist given with completeness. In the chapter on cod liver oil, no mention is made of the fact that this oil may be standardized for its value in deficiency diseases with considerable precision, or that several brands of oil so standardized are now on the market for medicinal use. Likewise, under chaulmoogra oil, hydnocarpus oil is stated not to have the medicinal properties of chaulmoogra oil, whereas, in fact, hydnocarpus oil is believed to have slightly greater therapeutic value than chaulmoogra oil. For this reason it has been described in the Japanese Pharmacopeia, Edition 4. The chapter on glycerin, by Dr. Lawrie, is well written and more detailed than some of the others. The chapter on linseed oil, by Dr. Pickard, also deserves mention for the wealth of information that it contains. While the chief function of this book is to aid the analyst engaged in studies of the fixed oils, much information is given of interest to the general reader. Numerous substances are described which occur in commerce but which are almost unknown to the layman and even to the chemist not specializing in fats and oils. These find a place in technology because of some peculiar property, such as high melting point (Japan tallow and montan wax), or similarity to cacao fat (Borneo tallow). Analysts who do not wish to purchase the more elaborate and expensive works on the analysis of fats and oils will find this volume a useful handbook.

TECHNIQUE CHIRURGICALE OTO-RHINO-LARYNGOLOGIQUE. Par E.-J. Moure, Professeur a la Faculté de médecine de Bordeaux; G. Liébault, oto-rhino-laryngologiste de l'Hôpital-Ecole Heine-Fould, et G. Canuyt, Chargé de cours de la clinique oto-rhino-laryngologique de la Faculté de médecine de Strasbourg. Deuxième fascicule. Fosses nasales. Nasopharynx cavités accessoires. Paper. Price, 55 francs. Pp. 535, with 324 illustrations. Paris: Gaston Doin: 1924.

This is the second volume of this excellent work covering the nasal fossa, the nasopharynx and the accessory sinuses. The entire volume is devoted to indications, armamentarium and technic of the various operative procedures. The illustrations, many of which are actual photographs, are profuse and are well chosen for their practical value. They convey to the reader exactly what the authors are trying to bring out. The text is briefly written, in fact, outlined, and contains little of a superfluous nature. Besides the actual operative procedures, the authors have deftly described and illustrated such valuable methods as inserting a postnasal tampon, and digital examination of the postnasal space. Differing somewhat from our American textbooks, twenty-eight pages are devoted to the subject of adenoids. It is to be noted that one operative procedure, said to be original with Moure, is illustrated profusely throughout the book, either in its original technic or as a modification. It consists of an incision carried along the sides of the nose and extended down and around the ala through the soft tissue down to the bone. The nose is deflected to one side, and then by means of a periosteotome the frontal, nasal and superior maxillary bones are exposed. The various steps following this depend on the type of operation to be done. In ethmoidectomies, half of the nasal bone is removed, as is one portion of the superior maxilla, the lacrimal groove of course being avoided so as to leave the sac intact. Besides using this technic or a similar one in ethmoidectomy, the authors employ it in their transmaxillary sinus procedures (differing only in that they remove a greater portion of the superior maxilla), for removing neoplasms from the upper straits of the nasal fossa, and, with a little additional technic, for the removal of one portion of the superior maxilla. Then, for some reason or other, the authors have included removal of the eye as an extension of this technic of Moure. In their description of the less radical procedure on the antrum of Highmore, they give a very detailed description of the Caldwell-Luc operation. Sphenoid sinus surgery is schematically and simply brought out. Nothing particularly new is shown in frontal sinus work. The authors have also included a very brief portion of their work on plastic surgery of the nose. All of the intranasal surgery is extremely radical, even to the advising of the removal of the inferior turbinate in simple hyperplasias. They advise against cauterization of the inferior turbinate, because of the tendency to possible recurrence.

AMPUTATIONS. Operative Technique—Formation and After-Treatment of the Stump from the Standpoint of Prosthesis. A Study Based on Seventeen Hundred Cases of Amputation for Injuries and Disease Occurring in the World War and Since Its Termination. Published under the authority and with the approval of the Surgeon General, U. S. Army. By Norman Thomas Kirk, M.D., F.A.C.S., Major, Medical Corps, U. S. Army. Cloth. Price, $5. Pp. 110, with 35 illustrations. Washington, D.C.: Interpreter Publishing Company, 1924.

This brief work is the result of the author's extensive experience in a centralized U. S. Army hospital for amputation cases. New general principles in amputations have been adopted by him and others through their experience as a result of the war, and the incorrectness of many operative procedures advocated in the older textbooks has been demonstrated. Amputations at various levels in the upper and lower extremity are explained, and reasons for acceptance or rejection are given from the author's experience. Emphasis on proper postoperative care of the stump is given, along with descriptions of various complications. Considerable space is given to the after-care of the guillotine stump, which is usually necessary before satisfactory use is obtained. Various styles of prosthesis are described and well illustrated. The author has demonstrated the value of the temporary prosthesis. The text is clear and practical. It gives one easy access to the most useful amputation procedures.

HISTOIRE DE LA MÉDECINE. Depuis ses origines jusqu' à nos jours. Par le Dr. L. Meunier, Membre de la Société française d'histoire de la médecine. Préface par le professeur Gilbert Ballet, Président de la Société française d'histoire de la médecine. Paper. Price, 30 francs. Pp. 642. Paris: E. Le François, 1924.

For any one interested in the development and past achievements of medicine, this is well worth reading. It is a concise history, of moderate length, without a wearisome mass of detail, and yet full enough so that no important work seems to be passed over with undue haste. One is left with an excellent impression of the stages by which medicine has reached its present condition. The schools of medicine in the different countries are described, with the thoughts that dominated the different periods, as well as the discoveries of individual persons, and their influence on the work of the time. The book is far more than a mere catalogue of names, useful chiefly for reference purposes; it is a continuous account of the growth of the medical sciences from their beginning until the present. In fact, the continuity of medicine is a point often insisted on by Dr. Meunier. So frequently does he indicate the ancient sources of our present

ideas and practices that one is astonished at the number of "modern" theories that were familiar to the men of hundreds of years ago. Thus, the "living causes of disease" have been investigated and treated from the time of the ancient priests, exorcising demons, to the present with its methods of defense against the hosts of invading organisms. The beginnings of the modern theory of immunity and the use of antitoxic agents date back to the Greeks and Romans and their use of the antidotes mithridate and theriaca. The book has the merit, besides offering the instruction and stimulation derived from the accounts of past achievements, of providing a pleasant piece of reading for one's liesure hours.

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA AND OF THE NATIONAL FORMULARY FOR THE CALENDAR YEAR ENDING DECEMBER 31, 1921. By A. G. DuMez. Treasury Department, United States Public Health Service. Hygienic Laboratory—Bulletin No. 137. Paper. Price, 30 cents. Pp. 283. Washington: Government Printing Office, 1924.

The present bulletin is the seventeenth in the series of digests of comments. Like the preceding issues, it is a comprehensive index of the available literature published in 1921 in connection with the two official drug standards of the United States, the Pharmacopeia and National Formulary. Comments on the items contained in these two standards should, therefore, be of immediate value. In addition, comments have been made on foreign drug standards for purposes of comparison. There has been much comment on the antinarcotic laws. The cultivation of medicinal plants continues to be a subject of widespread interest. The abstracts contained in the bulletin are prepared with a view to making them suitable merely as working references, the intent being to call attention to the character and scope of the papers reviewed rather than to record their actual contents, or to make critical comment.

A TEXT-BOOK OF THE SURGICAL DYSPEPSIAS. By A. J. Walton, M.S., M.B., B.Sc., Surgeon (with charge of outpatients) London Hospital. Cloth. Price, $14 net. Pp. 728, with 272 illustrations. New York: Longmans, Green & Co., 1923.

This is a most complete single volume treatise. Included are both gastric and extragastric dyspepsias; stomach and duodenum, liver and bile tracts, pancreas, appendix and visceroptosis. There are excellent chapters on the technic of gastric operations and of operations on the bile tracts. An easily readable text, supplemented by many excellent illustrations and roentgenograms, makes the book pleasant reading. The significance of the dyspeptic phenomena, particularly in their early stages, is too little appreciated. Otherwise the surgeon would encounter fewer late results, such as common duct stone, pancreatitis, Lane kink, pyloric stenosis, perforation, and perhaps even carcinoma.

EMERGENCY OPERATIONS FOR GENERAL PRACTITIONERS ON LAND AND SEA. An Illustrated Manual of Procedure and Technique. By H. C. Orrin, O.B.E., F.R.C.S.Ed., Surgeon, Ministry of Pensions Orthopaedic Hospital, Newcastle-on-Tyne. Cloth. Price, $2.75. Pp. 135, with 67 illustrations. New York: William Wood & Co., 1924.

In this small volume, an attempt has been made to give "the anatomical and surgical essentials needed, of those operations of an urgent nature, with which one is likely to meet." These include the more common abdominal emergencies, head injuries, emergency wounds, hemorrhage, tracheotomy and amputations. Such a work is of little value except in minor operations. It could be of no value, for instance, to a physician confronted by his first case of perforated duodenal ulcer.

NOUVEAU TRAITÉ DE MÉDECINE ET DE THÉRAPEUTIQUE. Publié sous la direction de MM. A. Gilbert, Professeur à la Faculté de médecine de Paris, et P. Carnot, Professeur à la Faculté de médecine de Paris. Fascicule XXXVI. Maladies des nerfs périphériques et du sympathique. Par Pitres, Professeur à la Faculté de médecine de Bordeaux; Vaillard, Médecin Inspecteur Général de l'Armée, et Laignel-Lavastine, Professeur agrégé à Faculté de médecine de Paris. Paper. Price, 60 francs. Pp. 857, with 56 illustrations. Paris: J. B. Bailliére et Fils, 1924.

This large tome carries most of the virtues and few of the defects usually attaching to such works. The subject is covered methodically and fully, except that some of the chapters have not brought quite down to the present. The lessons on injuries and regeneration of nerves taught by the Great War and the work inspired by war injuries are not adequately considered. This criticism does not apply to the section on the sympathetic (by Laignel-Lavastine), which is clearly postbellum and is, besides, particularly lucid and well balanced. The subjects of polyneuritis and mononeuritis are well handled, and the various peripheral palsies from the etiologic standpoint are well described. Affections of individual nerves receive full attention, especially the various sorts of involvement of the sciatic, a subject rarely presented in a masterly way. This treatise can be unreservedly commended. Although there is a paucity of illustrations, it contains that rare thing in a French medical work, a workable index.

SURGICAL EMERGENCIES. By Russell Howard, C.B.E., M.S., F.R.C.S., Surgeon, London Hospital. Cloth. Price, $2.50 net. Pp. 216, with 45 illustrations. New York: Longmans, Green & Co., 1924.

This book is too brief and incomplete to be of any practical value, except as a supplementary outline to the student.

Medicolegal

Evidence concerning Other Cases Inadmissible—Competence of Unlicensed Healer a Question for Jury

(Ragan v. Shannon et ux. (Okla.), 225 Pac. R. 672)

The Supreme Court of Oklahoma, in reversing a judgment that was rendered in favor of the defendants, husband and wife, says that the plaintiff, for whom it directs a new trial to be granted, was a girl 8 years old, who was suing, by her mother as next friend, for injuries suffered in the treatment of what was supposed to be a cancer on the lower eyelid. It was alleged in the petition that the defendants were not physicians licensed to practice medicine in the state, but held themselves out to be expert in the treatment of cancers; that they represented to the plaintiff and her mother that a discoloration or infection on the lid of the plaintiff's eye was a cancer; that they wrongfully and unlawfully undertook to treat it, and applied astringent and caustic remedies to the eyelid, and so unskilfully and negligently treated it that the the eyelid was severely burned, scarred, and drawn out of its natural shape; that it was continually painful, and permanently injured the plaintiff's eyesight and physical appearance, and destroyed to a great extent the usefulness of the eyelid. Mr. Shannon, who assumed all responsibility for the treatment, denied making any charge, but admitted accepting $15 as a gift. He said there was an angry red spot on the eyelid, about the size of a nickel, which he thought was a rose cancer; that the preparation used was zinc sulphate and a weed found growing in the woods; that the treatment was successful; that he had treated cancer for a great many years with uniform success; that if any injury resulted it was from the negligence of the plaintiff and her mother in permitting the eye to go unbandaged contrary to his instructions. On cross-examination he admitted that he had no medical education, and that neither of the defendants was licensed to practice medicine; that he had never studied physiology, anatomy, chemistry or any branch of medicine, except that he had read about cancers in some "doctor books" which had been left with him.

With this state of the record, the defendant was permitted, over the objection of the plaintiff, to introduce seven witnesses from 36 to 80 years old who each testified that he at one time had a cancer and the defendant James Shannon cured it. This was manifestly error and prejudicial to the plaintiff's interests. This testimony was not relevant to the issues, but wholly disconnected therefrom. There was no connection between this evidence and the diagnosis and treatment of the red spot on the plaintiff's eyelid. This class of evidence should have been excluded for two reasons: First, the plaintiff could not be expected to be prepared to meet it, and second, because it introduced new issues, and had a tendency to confuse the issues being submitted to the jury. The jury might easily have believed that each of these witnesses had been cured of cancer by the defendant and, from that, reached the conclusion that the defendant was competent to

make a proper diagnosis, and had administered a proper treatment in this case, while, if those issues had been tried out, it might have been made to appear that neither of the witnesses ever had a cancer. All these witnesses were nonexperts. Their evidence was purely opinionative. Such evidence has been held inadmissible. In other words, the court holds that, in an action for damages for injuries suffered in a treatment for cancer by one not licensed to practice medicine in the state, the results of the treatments by the defendant of other similar cases are not relevant to the issues, and it is error to admit in evidence proof of the results of such treatments.

Moreover, the court holds that the issues were not fairly submitted to the jury, because the instructions to the jury apparently were given on the theory that the cause of action rested on negligence, whereas the allegation of negligence was but incidental, while the main charge in the plaintiff's petition was the unlawful treatment and want of knowledge and skill on the part of the defendants, and all the evidence was directed to that issue. For example, the jury was told that it must be shown by a preponderance of the evidence that the injury was the result of negligence on the part of the defendants; and nowhere was there submitted to the jury any theory on which it could return a verdict for the plaintiff for injuries suffered by reason of the unskilful treatment unlawfully administered.

No Wrongful Withholding of Information in Fracture Case

(Kemp v. McGillivray et ux. (Wash.), 225 Pac. R. 631)

The Supreme Court of Washington, in affirming a judgment for the defendants notwithstanding the verdict of the jury, says that this action was to recover damages for alleged malpractice in the treatment of a spiral fracture of the tibia. The defendant physician testified that by the use of traction weights and pulleys he had obtained good functional results; that the leg had good alinement, and was shortened less than half an inch. But, within three or four weeks, the plaintiff, discovering that the ends of the bone were not in complete apposition, and that there was a little shortening of the leg, had an operation, by another surgeon, by refracture and the use of the Lane method. The court does not consider that the defendant could be successfully charged with malpractice, under the rule that a physician is not responsible in damages if the treatment he employs is that which is recognized and approved by those reasonably skilled his profession, practicing in the same neighborhood and in the same line of practice, and if he administers that treatment with the degree of skill and diligence that such practitioners ordinarily exercise in like cases.

But more particularly it was alleged and contended by the plaintiff that the defendant had wilfully and falsely, for the purpose of concealing his negligence and lack of skill, repeatedly informed the plaintiff that the fracture had been properly reduced; that the ends of the bone were in correct apposition, and that he would secure a strong, straight, normal union. Certainly, by all the testimony in the case, a good result was accomplished as measured by the law applicable in such cases. This charge was made because the ends of the bone were not in full accord and because of the slight shortening of the leg, which were in no sense inconsistent with a good functional result, such as was obtained. The charge was based largely on the fact that the defendant, on learning that one of the nurses, on seeing the roentgenograms, had advised the plaintiff to get the services of a specialist, warned her, in the absence of the plaintiff, against the practice of talking of such things to his patients. This was fully explained as a matter of discipline and necessity in the safe treatment of all patients. The nurse, who was not a trained or graduate nurse, but only what was termed a practical one, frankly admitted that she was not competent to say whether the bone had been properly set, what shortening there would be, or how much shortening would be required to produce lameness, and that if she were a physician she would not want a layman to be talking to her patients about her professional work.

It was true that the plaintiff testified that at times the defendant on request did not show him the roentgenograms, and that those he did let him see were not very clear. Beginning about two days after taking charge of the case, the defendant continuously or frequently made roentgenograms of the broken bone as long as he had charge of the case. The roentgenograms were not developed at the hospital, and he testified that as soon as they could be used, he would take the films to the light and show the plaintiff the bones, and would show him how the callus would form and fill in the space. Of this there was no denial by the plaintiff. In the presence of the plaintiff, the defendant showed the roentgenograms to the plaintiff's visitors and explained them to them. True, the defendant said nothing about a probable shortening of the leg until later; but why should he? He was not asked about it, and he knew he was getting a good result. Later on and about as early, under all the testimony, as it was practical to resort to the Lane operation if one was to be had, and on learning that the plaintiff wanted a leg that was perfect, so called, anatomically, it was the defendant who advised getting, and who wired for, the surgeon who performed the Lane operation. This proof fell short of evidence, or fair inference of such, showing any wilful or other withholding or concealing of information as charged by the plaintiff.

Rules in Civil Cases as to Insanity and Its Proof

(Keenan v. Scott et al. (Okla.), 225 Pac. R. 906)

The Supreme Court of Oklahoma, in affirming a judgment sustaining deeds, the validity of which was attacked on the ground of the alleged mental incapacity of the grantor, holds that the capacity to make a deed is that the grantor shall have the ability to understand the nature and effect of the act in which he is engaged and the business he is transacting.

It is the general consensus of judicial opinion that mental incapacity, whether it be due to mere weakness of mind or actual insanity, is not in itself a sufficient basis for obtaining the cancelation of a written instrument, unless the state of idiocy or imbecility complained of is such that it rendered the afflicted individual incapable of understanding the nature and effect of the transaction at the time the instrument was executed.

In all civil actions it is generally held that the burden of proof of insanity rests on him who alleges insanity, or seeks to avoid an act on account of it, and it develops on him to establish the fact of insanity by a preponderance of the evidence. If, however, a previous state of insanity is proved, the burden of proof is then usually considered to shift to him who asserts that the action was done while the person was sane; however, it has frequently been held that insanity which is not shown to be settled or general, as contradistinguished from a mere temporary aberration or hallucination, will not be presumed to continue unless the contrary is shown. An adjudication of insanity of the grantor of a deed a short time subsequent to the execution of it may be offered in evidence in an action wherein the deed is sought to be canceled on the ground of incompetence on the part of the grantor at the time of the execution of the deed; but it is not conclusive of that fact, and may be rebutted and overcome by oral testimony of the mental condition of the grantor at the time he executed the deed.

Society Proceedings

COMING MEETINGS

American College of Radiology and Physiotherapy, Chicago, Nov. 12-14. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Secretary.

Association of Military Surgeons of the United States, San Antonio, Tex., Nov. 13-15. Major E. E. Hume, M. C., U. S. Army, Army Medical Library, Washington, D. C.

District of Columbia, Medical Society of, Washington, Dec. 3. Dr. C. B. Conklin, Medical Science Building, Washington, Secretary.

Philippine Islands Medical Association, Manila, Dec. 18-20. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 13-14. Dr. Ramon M. Suarez, Santurce, Secretary.

Radiological Society of North America, Kansas City, Mo., Dec. 8-12. Dr. M. J. Sandborn, 844 College Ave., Appleton, Wis., Secretary.

Southern Medical Association, New Orleans, La., Nov. 24-27. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, Charleston, S. C., Dec. 9-11. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Western Surgical Association, French Lick Springs, Dec. 4-6. Dr. Harry P. Ritchie, Lowry Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

8: 257-384 (Sept.) 1924

*Relation of Venereal Diseases to Childbirth. E. A. Schumann, Philadelphia.—p. 257.
*Morphin and Magnesium Sulphate as Obstetric Analgesic. T. W. Adams, Ann Arbor, Mich.—p. 266.
*Placental Infarct in Relation to Etiology of Deformed Babies. J. E. Talbot, Worcester, Mass.—p. 271.
End-Results of 201 Cases of Carcinoma of Cervix. H. C. Taylor and T. C. Peightal, New York.—p. 288.
*Phenoltetrachlorphthalein Test of Liver Function in Toxemias of Pregnancy. J. A. Smith, Boston.—p. 298.
*Recurrent Toxemia of Pregnancy. F. S. Kellogg, Boston.—p. 313.
*Uterine Prolapse, Cystocele, Rectocele. L. E. Phaneuf, Boston.—p. 322.
Construction of Artificial Vagina. C. J. Miller, New Orleans.—p. 333.
*Method of Ensuring Sterility Following Cesarean Section. F. C. Irving, Boston.—p. 335.
*Treatment of Severe Types of Dysmenorrhea. F. A. Cleland, Toronto.—p. 337.
*Vaginoscopy in Treatment of Gonorrheal Infection of Lower Genital Tract in Infants and Young Girls. L. M. Randall, Rochester, Minn.—p. 345.
*Ovarian Cyst Removed Under Local Anesthesia. E. L. Stone, New Haven, Conn.—p. 351.
Improved Head Stethoscope for Fetal Heart Tones. F. H. Falls and T. A. Hunter, Iowa City.—p. 356.
Six Cases of Puerperal Infection. J. Ronsheim, Brooklyn.—p. 359.
Case of Unilateral Amastia. H. W. Louria, Brooklyn.—p. 364.

Venereal Diseases and Childbirth.—The conclusion reached by Schumann from an analysis of the relationship of venereal diseases to childbirth is that with the steady increase of careful parental examination, the early recognition of these diseases and their active and persistent treatment, the power they possess of destruction of fetal life and maternal health, is vastly diminished. It seems fair to assume that if equal progress is made in the next two decades as has taken place in the past two, these diseases will have largely lost their position as the chief destroyers of infant life.

Morphin and Magnesium Sulphate Obstetric Analgesia.—The action of morphin and magnesium sulphate on labor pains was studied by Adams in sixty cases. A 25 per cent. solution of chemically pure magnesium sulphate was used. The required amount of this solution, as the occasion demanded, was sterilized by fractional boiling. It was then drawn up into a sterile hypodermic syringe and the desired amount of morphin sulphate added. The injections were made intramuscularly, the deltoid muscle being the common site of injection. The cases used in these experiments were in no way selected. The total length of labor was not prolonged. Postpartum bleeding was not excessive. In no case was there any deleterious effect to the mother, either immediate or delayed, which could in any way be attributed to the magnesium sulphate and morphin. There were no cases of sloughing at the site of injections and no increased tendency to nausea and vomiting. There was no mortality. Eighty-five per cent. of the children cried spontaneously within one minute of birth. Thirteen per cent. were slightly cyanotic at birth; one child was born in pallid asphyxia, gasped a few times but could not be resuscitated. Necropsy revealed an enlarged thymus and the blood Wassermann was four plus. In a parallel group of cases, in which no magnesium sulphate and morphin had been given, 82.2 per cent. of babies cried spontaneously, 13.5 per cent. showed evidence of slight asphyxiation and 4.3 per cent. were either born dead or in pallid asphyxia. Spontaneous delivery occurred in fifty-four cases. Five women were delivered by forceps, and in one case delivery was by cesarean section. At first the dose used was 1.5 c.c. of a 25 per cent. solution of magnesium sulphate and one-eighth grain morphin. Although the cases treated in this way showed some diminution of pain, it was not until the dose was increased to 2 c.c. of magnesium sulphate and one-sixth grain morphin that the more favorable results were obtained. In no case was a single larger dose given. In thirteen cases in which the effect of the medication seemed favorable but not lasting, the dose was repeated.

Placental Infarct and Deformed Babies.—The evidence presented by Talbot is said to show that most congenital malformations which are the result of lack of embryonic development are not hereditary defects but are acquired in utero; that defects in development are due to injury to the placenta during the early weeks of pregnancy; that the injury to the placenta is due to maternal hematogenous infection of the blood vessels of the placental site, and that the source of the hematogenous infection is generally to be found in the teeth or tonsils.

Liver Function Test in Pregnancy Toxemia.—The phenoltetrachlorphthalein test of liver function has been done by Smith on twenty normal pregnant women and forty-four women with a toxemia of pregnancy characterized by hypertension and albuminuria (including eight women who probably had chronic nephritis and seven who had convulsions). The results obtained lead to the conclusions that definitely abnormal retention of the dye in a patient with toxemia of pregnancy suggests that the toxemia is a severe one and that it is of the preeclamptic rather than the nephritic type, but the degree of retention of the dye does not appear to be a reliable index of the amount of actual necrosis in the liver. A normal test, on the other hand, is of doubtful value unless obtained not more than a very few days before delivery or if obtained repeatedly up to near the time of delivery. An accurate estimate of the practical value of the test must await further investigation.

Recurrent Toxemia of Pregnancy.—The possibility of regrouping certain toxemias of pregnancy in a manner which is of great clinical importance, particularly in relation to prognosis, is suggested by Kellogg as the result of his analysis of about 450 cases. He asserts that recurrent toxemia of pregnancy is a clinical entity distinct from chronic kidney disease complicating pregnancy and different from the acute single toxemia of pregnancy. This group probably consists of patients who have a faulty kidney balance, that is, a balance that allows them to live without kidney manifestations when not pregnant, but when the load of pregnancy is added they develop kidney insufficiency. This group of recurrent toxemia of pregnancy may be subdivided judging by results into two classes: (*a*) in which the prognosis under the strictest possible prenatal care is good both for mother and child, and (*b*) in which the prognosis for the child is bad no matter what prenatal care is instituted.

Uterine Prolapse.—All of Phaneuf's sixty-three patients were operated on per vaginum; the transposition operation was chosen as the method of election and was performed on fifty-eight patients, while five had vaginal panhysterectomies with transposition of the united broad ligaments between the bladder and the vagina (modified Mayo technic). In connection with the fifty-eight transposition operations, amputation of the cervix was performed forty-six times; this was done in all cases in which hypertrophy, elongation or laceration of the cervix was present. In all cases a colpoperineorrhaphy and, when an enterocele was present, obliteration or, better, shortening of the culdesac of Douglas, completed the operation. Phaneuf advocates the transposition operation when the uterus is normal in size or hypertrophied. When dealing with an atrophic uterus he has obtained better results with the vaginal panhysterectomy with transposition of the united broad ligaments.

Sterility After Cesarean Section.—In the method used by Irving the tube is doubly ligated with chromic catgut and divided about 1½ inches from the uterine cornu. The proximal portion is dissected free from its mesosalpinx. Its free end just proximal to the ligature is transfixed with a long, round pointed straight needle carrying a double suture of chromic catgut. The knotted loop of this suture is slipped over the free end of the tube and the suture drawn tight. A small incision is now made in the serosa of the uterus on its

anterior surface just above the insertion of the round ligament. The butt of the needle is grasped with a sharp pointed hemostat. The point of the needle is thrust into the incision, through a portion of the muscularis and out again on the surface of the serosa about 1 inch from the incision. The closed hemostat, still grasping the needle, follows it into the muscularis. The jaws are spread, thus forming a pocket in which lies the traction suture attached to the tube. The hemostat is withdrawn. The tube end is grasped with the hemostat and inserted in the small incision. Traction on the suture causes the tube to enter the pocket prepared for it in the muscularis. The incision is closed by suture. The end of the distal portion of the tube is buried between the leaves of the broad ligament. All peritoneal surfaces are approximated. As the uterus undergoes involution, the buried proximal ends of the tubes become more and more compressed and should soon be obliterated. Since no time is wasted in checking hemorrhage the operation can usually be completed more rapidly than by the older method of tubal excision.

Treatment of Dysmenorrhea.—Cleland asserts that no matter what may be the cause of essential dysmenorrhea, the site of the trouble is at the internal os, and that by severing this powerful, circular, fibromuscular ring and producing a dilatation, which is maintained long enough that the muscle does not contract again, nearly all cases of dysmenorrhea can be cured, or if not entirely cured, a sufficient measure of relief can be obtained to warrant the procedure. Cleland packs the uterus and cervix with iodoform gauze and leaves it undisturbed until the eighth day. In some cases it is not necessary to cut the internal os, as dilatation may easily be proceeded with until a sufficient degree is obtained. The amount of incising which has to be done varies slightly in different cases. Cleland usually makes two lateral incisions about one-sixteenth or one-twelfth inch in depth, care being taken to cut only the internal os. After this procedure, dilatation is easily continued. In none of the 230 operations reported on have ill effects resulted either primarily or secondary.

Vaginoscopy in Gonorrheal Vaginitis.—Eleven cases of intractable gonorrheal infection of the lower genital tract are reported by Randall in which positive films were found after clinical examination by the ordinary methods could not demonstrate a cause for the persistence of the infection. Vaginoscopy revealed definite cervical disease in five patients, two of whom presented ectropion of the endocervix. Systemic treatment of these lesions controlled the infection in all but one case, which presented an acute Bartholinitis on return of the patient.

Large Ovarian Cyst.—The case reported by Stone is said to be the largest tumor of its kind removed intact under local anesthesia. The tumor, a multilocular ovarian cyst, weighed 67 pounds. It contained 57 liters of fluid.

American Journal of Physiology, Baltimore

70: 1-224 (Sept.) 1924

*Thyroid Studies. II. Changes in Thyroid Gland Produced by Fecal Extracts. H. P. Rush and L. T. Jones, Portland, Ore.—p. 1.

Pupil Inequality After Bilateral Section of Cervical Sympathetic. J. Byrne and C. P. Sherwin, New York.—p. 9.

Sensitivity of Small Intestine at Different Levels to Internal Pressure. J. W. Crane and V. E. Henderson, Toronto.—p. 22.

*Specific Dynamic Action of Proteins in Dogs. R. Gibbons, Chicago.—p. 26.

*Function of Peripheral Neurones in Conduction of Impulses in Sympathetic Nervous System. A. Querido, Boston.—p. 29.

*Effect of Double Suprarenalectomy on Blood Coagulation Time in Cats. O. W. Barlow and M. M. Ellis, Columbia, Mo.—p. 58.

Influence of Temperature on Tonus Waves of Turtle Auricle. J. R. Pereira, Boston.—p. 68.

*Day to Day Variations in Basal Metabolism of Women. R. Hafkesbring and M. E. Collett, New Orleans.—p. 73.

*Lead Studies. IV. Blood Changes in Lead Poisoning in Rabbits; Stippled Cells. J. A. Key, Boston.—p. 86.

*Testicular Volume Changes. C. E. King and R. M. Oslund, Nashville, Tenn.—p. 100.

*Vasectomy on Dogs. R. M. Oslund, Nashville, Tenn.—p. 111.

Relation of Labyrinthine and Retinal Excitations in Rabbit. S. S. Maxwell and G. F. Pilz, Berkeley, Calif.—p. 118.

Diuresis in Sheep. J. L. Morris, V. Jersey and C. T. Way, Cleveland.—p. 122.

*Toxicity of "Acetone Bodies." I. Acetone Administered Intravenously. B. H. Schlomovitz and E. G. Seybold, Milwaukee.—p. 130.

Electrical Studies in Mammalian Reflexes. IV. Crossed Extension Reflex. A. Forbes and McK. Cattell.—p. 140.

*Studies in Gastric Secretion. I. Psychic Secretion of Gastric Juice Under Hypnosis. A. B. Luckhardt and R. L. Johnston, Chicago.—p. 174.

*Studies on Intestinal Inhibitory Reflexes. C. E. King, Nashville, Tenn.—p. 183.

Effect of Increased Air Movement and Water Intake on Dog During Exposure to High Temperature. F. B. Flinn, Washington, D. C.—p. 194.

*Effect of Thyroxin and Its Acetyl Derivative on Amphibians and Mammals. W. W. Swingle, O. M. Helff and R. L. Zwemer, New Haven, Conn.—p. 208.

Changes in Thyroid Produced by Fecal Extracts.—Rush and Jones state that fecal extract when injected intraperitoneally into rabbits causes an increased activity of the thyroid gland as evidenced by colloid absorption, hyperplasia and hypertrophy. The increase in activity of the gland seems to be roughly comparable to the amount of toxin given. It would seem as though the thyroid breaks under the strain of large doses of toxin and undergoes degenerative changes as evidenced by cytolysis and varying degrees of inflammatory changes. This response so far has shown itself to be merely a physiologic increase in the gland.

Specific Dynamic Action of Proteins.—Experiments were undertaken by Gibbons with the view of determining whether a difference in the degree of specific dynamic action of food might be a factor in the well known phenomenon that of two animals of the same age and sex, on the same diet, and as nearly as possible the same amount of exercise, the animal with an hereditary tendency to leanness will remain thin, while the animal with an hereditary disposition to adiposity will put on fat. The specific dynamic action of 200 gm. of ground calf heart from which all visible fat had been removed were tested on two male dogs of approximately the same age and weight. These tests show clearly a higher specific dynamic action of protein in the lean dog.

Function of Peripheral Neurons.—Querido concludes that impulses of widely varying frequencies, started central to the ganglion, induce there impulses which pass to the end organ at optimum frequency. Disturbances which are started central to the ganglion are transformed to maximal when they pass beyond the ganglion.

Effect of Double Suprarenalectomy on Blood Coagulation Time.—The coagulation time in seventeen double suprarenalectomized cats was consistently shorter after the operation than before. The coagulation time became progressively shorter as the death point was approached. There was a well defined parallelism between the curves of blood sugar and coagulation time following the operation after the initial period of hyperglycemia was passed. Control animals indicated that these changes in coagulation time were not the result of ether or operative procedure. Control series of normal animals treated with insulin and barbital, respectively, showed a similar parallelism between the blood sugar curve and that of the coagulation time when hypoglycemic condition was induced.

Variations in Basal Metabolism During Menstruation.—Studies made by Hafkesbring and Collett show that the basal metabolism is low on the first or second day of menstruation and often throughout the period. There is frequently a premenstrual rise and intermenstrual minimum. The difference between high and low levels amounts to 5 per cent. Pulse rate is steady and shows no correlation with either temperature or menstruation.

Stippled Cells in Blood in Lead Poisoning.—Experimental lead poisoning in rabbits is consistently followed by the appearance of stippled cells in the blood. These are not found in chickens or cats. Far more stippled cells appear in the blood of anemic than of normal rabbits after ingestion of lead. The stippled cell is a young red cell. Key asserts that the anemia of lead poisoning is due to actual rapid destruction of red cells in the blood stream and not to inhibition of the activity of bone marrow. Young red cells are destroyed more rapidly than mature cells. Leukocytosis occurs during experimental acute lead poisoning.

Testicular Volume Changes.—The data presented by King and Oslund bear mainly on two phases of testicular and

epididymis activity. On the one hand, some light is thrown on the regulation of the blood supply and on the other, on the motor activities of the epididymis. The evidence points clearly to the fact that there are vasoconstrictor fibers in the spermatic nerves. Under no conditions have we been able to obtain a sustained diminution in testicular volume with a high systemic blood pressure. This indicates that the blood supply to the testicle varies largely in proportion to the systemic blood pressure and that the vasoconstrictor mechanism does not play such an important rôle in the testicle as in some other organs, the kidney, for example. No clear-cut evidence has been obtained for the existence of vasodilators in either the spermatic nerves or in the hypogastrics. A rhythmical volume change in the epididymis has been recorded. This change appears independent of variations in blood pressure and has been interpreted to be due to muscular activity in the seminal ducts.

Effect of Vasectomy.—Literature reviewed by Oslund shows that vasectomy on sheep from seventy-six days to one year, on dogs from sixty days to four years, and on man, from six months to four years, has produced no testicular changes, other than distention of the epididymis. The error in the theory of vasectomy as a means of producing rejuvenescence has been pointed out.

Toxicity of Acetone Bodies.—Schlomovitz and Seybold found that acetone is toxic when given intravenously in doses at the rate of 0.045 to 1.303 c.c. per kilogram per minute in dogs; and in doses of 0.403 to 3.430 c.c. per kilogram per minute in cats, rabbits and guinea-pigs. The animals lived from 0.5 to 48.5 minutes. The time that the animal lives is inversely proportional to the size of the dose per minute; particularly when the rate of administration is such as to increase the acetone percentage in the blood 0.1 to 3.0 per minute. Acetone produces depression in the following order: respiratory center, heart and vasomotor center.

Effect of Hypnosis on Gastric Secretion.—According to Luckhardt and Johnston the gastric glands respond more promptly to a test meal actually ingested when the subject is under hypnosis than when he is in the waking state. Suggestion of a test meal under hypnosis causes a secretion curve with acidities equally high as when the test meal is actually given. The induction of the hypnotic state itself results in a secretion curve as high in acidities as can be obtained by any other method. Suggestion of food immediately after induction of hypnosis causes a delay in the spontaneous rise in acidity, due perhaps to the increased volume of juice, but the suggestion of food under hypnosis results in an increase of volume of gastric juice generally two or three times that of the control period before hypnosis. Under hypnosis, after the spontaneous rise in acidity has subsided, suggestion of food causes an additional rise comparable with that obtained when the test meal is actually given. Suggestion of food repeatedly to the extent of satiety results in a curve no higher in acidity and not appreciably longer in duration than that obtained when only the Ewald test meal is suggested (comparisons made under hypnosis). The talking about food in the waking state caused a psychic secretion, but with the time interval used (fifteen minutes) there was no latent period between the stimulation and the rise in acidity. The volumes were also increased in this case.

Intestinal Inhibitory Reflexes.—Evidence is presented by King showing that impulses from the urinary tract, rectum, peritoneum and from certain skin areas reflexly diminish the tonus and movements of the small intestine. The splanchnics contain the efferent paths of these reflexes. The vagi are very little, if any, involved in these reactions. Some of the afferent paths involved are in the hypogastrics. The facts presented are interpreted as throwing light on the mechanism involved in producing some of the disturbances involving the gastro-intestinal tract, associated with irritating conditions in the pelvis, and also in explaining some of the phenomena accompanying and following micturition.

Effect of Thyroxin Feeding.—Experiments were designed by Swingle, Helff and Zwemer to test the view that the physiologic responses of amphibians and mammals to thyroid administration depend on different chemical groupings within the hormone. Both thyroxin and its acetyl derivative are highly active agents in inducing the metamorphosis of thyroidectomized and hypophysectomized tadpoles when either fed or injected. Thyroxin when given intravenously to normal, adult men exerts a profound physiologic response, comparable to that evoked by excessive thyroid feeding. Oral administration of thyroxin gave practically negative results despite the large dosage employed. Thyroxin is apparently destroyed within the alimentary canal of man. Acetyl thyroxin when intravenously injected into normal individuals exerts no physiologic response. Oral administration of this substance likewise proved negative. Chemically the only difference between thyroxin and the acetyl derivative is the substitution of acetyl for the hydrogen of the imino group. The effect of thyroid on mammalian metabolism is apparently unique and is not induced by other organic iodin compounds which metamorphose amphibians. The metabolic responses of mammals and the metamorphic responses of amphibians to thyroid are hardly to be compared as they are apparently due to quite different chemical groupings within the hormone although the iodin seems essential for the activity of both chemical groups, i. e., the group responsible for mammalian metabolism and the group for amphibian metamorphosis.

Archives of Internal Medicine, Chicago

34: 267-416 (Sept.) 1924

*Metabolism of Obesity. 1. Relation Between Food Intake and Body Weight in Some Obese Persons. S. Strouse, Chicago and M. Dye, East Lansing, Mich.—p. 267.
*Id. II. Basal Metabolism. S. Strouse, C. C. Wang, Chicago and M. Dye, East Lansing, Mich.—p. 275.
*Phenoltetrachlorphthalein and Hemoclastic Tests of Liver Function. A. Gonzalez and W. G. Karr, Philadelphia.—p. 282.
*Hemochromatosis in Women. E. S. Mills, Montreal.—p. 292.
*Blood Fibrin: In Normal Persons, Pregnant Women, in Pneumonia and Liver Disease. D. P. Foster, Boston.—p. 301.
*Fusiform Bacilli and Spirochetes. IX. Rôle in Pulmonary Abscess, Gangrene and Bronchiectasis. I. Pilot and D. J. Davis, Chicago.—p. 313.
*Effect of Iodin in Exophthalmic Goiter. P. Starr, H. P. Walcott, H. N. Segall and J. H. Means, Boston.—p. 355.
*Quantitative Index of Kidney Function. Thermodynamic Considerations in Estimation of Renal Efficiency. I. M. Rabinowitch, Montreal.—p. 365.
*Marked Hypertension, Adequate Renal Function and Neuroretinitis. H. P. Wagener and N. M. Keith, Rochester, Minn.—p. 374.
*Metabolism of Galactose. 1. Threshold of Tolerance in Normal Adults. A. W. Rowe, Boston.—p. 388.
*Muscular Efficiency of Patients with Diabetes Mellitus. R. Fitz and W. P. Murphy, Boston.—p. 402.

Metabolism of Obesity.—The literature on obesity is reviewed by Strouse and Dye to prove the existence of a clinical entity, which for want of a better name is called constitutional obesity. Persons showing this predisposition show no interdependence between food intake, energy expense and weight. Dietary studies of some new cases are given; and a clinical study of a healthy, very thin man is reported. The data thus accumulated prove that certain types of obese persons maintain their weight without regard to the usually accepted caloric balance.

Basal Metabolism Studies.—Sixty-one observations on basal metabolism were made by Strouse, Wang and Dye on persons of different weight and build. These observations include eleven observations on six normal persons, seventeen on nine underweight and thirty-three on seventeen overweight subjects. It is stated that neither excessive underweight nor excessive overweight is associated with a constant change in basal metabolism. The conclusion is reached that obesity cannot be caused by changes in the basal metabolism.

Comparison of Liver Function Tests.—The hemoclastic and phenoltetrachlorphthalein tests of liver function were used by Gonzalez and Karr in groups of cases with primary or secondary liver disease. The comparative results of tests are presented, with short comments on each group of cases tested. In many cases the pathologic changes of the organ were determined either at operation or at necropsy. It is suggested that the hemoclastic reaction measures directly the physiologic capacity of liver cells, while the dye test measures this capacity dependent on the patency of the biliary passages. The hemoclastic reaction appears to be more sensitive than the dye test, but a combination of the two is often helpful in diagnosis or even prognosis of obscure hepatic disease.

Emphasis is laid on the large factor of safety of the liver, which precludes the use of any functional test to detect minor disturbances of the organ.

Hemochromatosis.—Mills presents an analysis of seventeen cases of hemochromatosis, which with one exception came to necropsy. Five patients in their occupations had had long exposure to copper, and at least six had a strong alcoholic history. Six patients were admitted with symptoms directly referable to the disease. Eight complained of swelling of the abdomen or symptoms therefrom, and five of jaundice. Three had noticed gradual darkening of the skin of the face, neck and arms. One patient was found dead in bed, and no cause of death other than the hemochromatosis was discovered. Six patients were admitted and died because of associated but irrelevant lesions. Three died of superimposed primary liver cell carcinoma. The spleen varied in size from large to small, and the variations were not related to the size of the liver.

Blood Fibrin Studies.—The average blood fibrin for normal men was found by Foster to be 163 mg. per hundred cubic centimeters; for normal women, 179 mg. per hundred cubic centimeters. The average plasma fibrin found for normal men was 332 mg. per hundred cubic centimeters. The average blood fibrin of pregnant women was found to be 273 mg. per hundred cubic centimeters; the average plasma fibrin, 415 mg. per hundred cubic centimeters. Toxemia of pregnancy (nonfatal) is associated with an elevated blood fibrin. The elevation seems to parallel the severity of the symptoms. The toxic manifestations due to nephritis complicating pregnancy are not accompanied by a marked fibrin elevation. It is inferred from the difference in fibrin reaction that the toxic syndrome due to nephritis complicating pregnancy is of a different nature than that of true toxemia of pregnancy. Two fatal cases of acute liver atrophy were associated with a low blood and plasma fibrin content. Nonfatal arsphenamin jaundice was associated with an elevated blood and plasma fibrin. Lobar pneumonia was associated with a greatly elevated blood fibrin. The fibrin rapidly falls to normal after uncomplicated crisis. Complications (e. g., empyema) cause a subsequent fibrin rise. The fibrin curve does not parallel the white blood cell count in all instances. A series of fibrin determinations on a miscellaneous group of diseases is tabulated.

Pulmonary Infection by Anaerobes.—Thirty-seven cases of pulmonary infection due to certain anaerobes, characterized by abscess formation and gangrene, are reported by Pilot and Davis. The bacteriologic, pathologic and clinical studies indicate a type of infection which may be classified as a distinct clinical entity. The authors refer to the process as a fusospirochete pneumonia, but pyogens, particularly streptococci, play an important contributory rôle. The lesion is largely in the form of simple or multiple abscesses, gangrenous bronchopneumonia or a diffuse form of gangrene. The development of this type of infection depends to a great extent on predisposing factors such as general anesthesia, tonsillectomy, aspiration of foreign bodies perforating lesions into the trachea and bronchi, infections, especially pneumonia, carcinoma, tuberculosis, and bronchiectasis and circulatory disturbances of various kinds. In a few cases the lesions develop without evident predisposing causes. The clinical picture and course is variably influenced largely by the underlying contributory factors, resistance of the patient, and the extent of the lesion. Probably in all cases the source of infection relates back to the teeth and tonsils where the fusiform bacilli and spirochetes and cocci are present in enormous numbers. The prevention of these pulmonary infections, therefore, lies in the proper hygiene of the mouth. Arsenic, particularly neo-arsphenamin, has a definitely therapeutic action on fusospirochete infection. Most favorable results are obtained in the early cases.

Iodin in Exophthalmic Goiter.—Starr and his associates assert that iodin by mouth will produce abrupt remission in most cases of exophthalmic goiter. The remission is often as rapid and as extensive as that following subtotal thyroidectomy. It is believed that iodin is the causal agent of this remission. Iodin alone as now used has not been shown to be sufficient to suppress the disease permanently. After a patient with exophthalmic goiter has been taking iodin, a rapid rise of metabolic rate and increase of toxic symptoms will occur within one or two weeks if the iodin is stopped. In some cases of exophthalmic goiter, iodin has no observable effect.

Test for Renal Function.—Rabinowitch presents what he believes is a still more exact method of studying renal function than his urea concentration test (previously described) in that, at least so far as excretion of one substance is concerned, namely urea, an attempt is made to express the results in quantitative terms. The "urea concentration factor" forms an essential part of the necessary data. The basis of the test is the estimation of the work done by the kidneys, in the excretion of a definite amount of urea, by the application of certain elementary laws of thermodynamics.

Neuroretinitis and Kidney Function.—Wagener and Keith state that certain patients with severe neuroretinitis show little or no evidence of renal insufficiency. They have marked hypertension, moderate peripheral arteriosclerosis and cardiac hypertrophy, but their condition differs definitely from that of those with chronic diffuse glomerular nephritis. From the history, clinical and laboratory findings, and subsequent course, these patients appear to constitute a distinct clinical group.

Metabolism of Galactose.—The significance of the term "threshold of tolerance," for carbohydrates, and the assimilation limit in terms of urine findings is defined by Rowe. Certain necessary control limitations in the application of a provocative melituria test are indicated, and the technic of a test using galactose is described. By means of this test, the conventionally defined threshold of tolerance for groups of normal adult men and women is studied and the results reported. The dose exciting melituria is influenced little, if at all, by age, weight, body area or certain other biometric factors. It is found to be apparently directly dependent on sex, and the influence of the mammary glands in women is suggested as a possible explanation. The average "tolerance dose" for man is found to be 30 gm. and for woman 40 gm.

Muscular Efficiency of Diabetics.—Studies on the muscular efficiency of patients with diabetes made by Fitz and Murphy confirm the observations of Williams, Miles and Root. The strength of most diabetic patients is appreciably less than normal, but can be made to approach normal by proper diet and physical therapy. The total calories of the diet, rather than the fractions of carbohydrate, protein or fat, seem of greatest importance in adding strength.

Archives of Neurology and Psychiatry, Chicago

12: 359-484 (Oct.) 1924

*Treatment of General Paralysis. I. J. Furman, Ward's Island, N. Y.—p. 359.
*Objective Findings in Psychoses. P. J. Trentzsch, Washington, D. C.—p. 370.
Parts of Central Nervous System Which Tend to Exhibit Morbid Recessive or Dominant Characters. S. E. Jelliffe, New York.—p. 380.
*Cerebral Subarachnoid System. C. E. Locke and H. C. Naffziger, San Francisco.—p. 411.
*Remissions in General Paralysis. M. W. Raynor, New York.—p. 419.
Neuropsychiatric Sequelae of Cerebral Trauma in Children. E. A. Strecker and F. G. Ebaugh, Philadelphia.—p. 443.

Treatment of General Paralysis.—The results obtained in the treatment of a series of 500 cases of general paralysis are reported by Furman. The most outstanding result so far is the improvement in the general health of the patients. Furman feels that every psychiatric hospital should adopt the general plan of urging patients, either on parole or after discharge, to continue to receive treatment at the hospital or at a proper clinic, and supplement this by a follow-up system for recording the results of such treatment. Furthermore, it is suggested that all patients with neurosyphilis be paroled for an indefinite period so that they may be supervised continually throughout the whole course of the disease. In order to give the patients an opportunity to obtain the greatest amount of help and relief, it seems essential that all possible speed should be used in diagnosing cerebrospinal syphilis, and that all patients with suitable cases should receive an initial intensive course of arsenic and spinal drainage and

mercury and iodids as soon as practicable after admission, in order to produce a cure, if possible, or, failing this, to obtain the greatest amount of improvement. If patients do not do well on large doses, it seems feasible to give smaller doses, with the idea of using neo-arsphenamin both for a certain amount of spirocheticidal effect and for a tonic action; in other words, to give the patient the benefit of the latest and best treatment whether this be from the direct method of specific treatment or from the standpoint of increasing the patient's resistance to the disease by the indirect method of building up the general bodily health and well being of the patient.

Relation of Neurocirculatory System to Psychoses.—Trentzsch draws attention to the relation of the neurocirculatory system to the psychoses. In 601 necropsies in cases of the hebephrenic and catatonic types of dementia praecox, 71.55 per cent., had small aplastic hearts. The incomplete development involved also the capillary system. In a study of the weight of the heart in the psychoses, 75.5 per cent. of the patients with dementia praecox had hearts of less than average weight, while only 7.8 per cent. of the patients with paranoia had hearts of less than average weight; 30 per cent. of the patients with manic-depressive psychosis and 30.2 per cent. with epilepsy had hearts weighing less than the average. A neurocirculatory rating system was worked out for aviators. It was found that the men with a low rating did not do well in their flying. Those with a high rate seemed to be rather stable types. A group of patients suffering from psychoses were given various tests to determine a neuropsychiatric rating. A high rating was obtained in only 18.8 per cent. of cases of the hebephrenic type of dementia praecox and in 26.6 per cent. of those of the catatonic type. In the two groups, 82.61 per cent. of the cases had a low rating. In the paranoid group, the neurocirculatory rating was high in 73.1 per cent. After a series of exercises, the ratings of paranoid patients increased, while the hebephrenic and catatonic cases did not respond. A group of patients were tested for endocrinologic abnormalities. Only three of these showed any indications of a glandular disturbance. This would seem to indicate that the glands of internal secretion had little or no bearing on the pulse rate or blood pressure of the remaining cases.

Cerebral Subarachnoid System.—Locke and Naffziger describe the results of their studies of the subarachnoid system which were made for the purpose of determining the possible routes for fluid distribution with relation to the spread of meningeal infections. In instances of fluid block, as in hydrocephalus, certain methods of circuiting the circulation have appeared, and their practicability is now being investigated clinically.

Remissions in General Paralysis.—Raynor concludes that spontaneous remissions in patients with untreated cases of general paralysis occur but are not frequent; that in at least more than one half of the cases they are not permanent; that remissions may occur more than once in the course of the disease in the same persons; that remissions are more common in cases presenting a gradual onset, with changes in the disposition, emotional instability and defects in orientation and memory than in other clinical types of general paralysis; that there are no anamnestic, mental or neurologic criteria on which a prognosis for a remission can be based; that factors favorable to the occurrence of spontaneous remissions must be sought elsewhere than in the clinical picture of the disease; that the Jews, Irish and Germans are relatively more prone to develop general paralysis than other races; that the incidence of spontaneous remissions in Jews, Germans and Italians is low as compared with that of other races.

Iowa State Medical Society Journal, Des Moines

14: 395-438 (Sept.) 1924

*Diseases and Fate of Twins. I. A. Abt, Chicago.—p. 395.
Precancerous Eruptions of the Skin. F. C. Knowles, Philadelphia.—p. 403.
Significance of Discharges from the Anus. C. J. Drueck, Chicago.—p. 407.
Shoulder and Hip Fractures. F. J. Cotton, F.A.C.S., Boston.—p. 409.
Operative Fractures. C. S. James, F.A.C.S., Centerville, Iowa.—p. 412.
End-Results in Forearm Fractures. C. E. Dakin, Mason City, Iowa.—p. 417.
Preoperative Management of Prostatics. A. A. Schultz, Fort Dodge, Iowa.—p. 419.

Twins.—Abt discusses twins in relation to normal growth and to disease. He regrets that there are not more data at hand concerning the development, physical and mental, of twins during their later lives. To make such data available, it would be important for obstetricians to record in every instance whether the twins originated from one or two ova, which information should also be supplied to the families. Parents, physicians, teachers, should be able to furnish significant information. Twins themselves, or their friends, might in some instances contribute important biographic sketches, and life insurance companies and bureaus of vital statistics should furnish details about the causes of death. Information of this kind would be of great interest, if not of practical value, to a great number of people.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

24: 101-177 (Sept.) 1924

Natural Resistance of Rats and Mice to Histamin, Pituitary and Other Poisons. C. Voegtlin and H. A. Dyer, Washington, D. C.—p. 101.
Chronic Intoxications in Rats. T. Sollmann, Cleveland.—p. 119.
*Nephropathic Action of Dicarboxylic Acids and Their Derivatives. I. Tartaric, Malic and Succinic Acids. W. C. Rose, Urbana, Ill.—p. 123.
Nephropathic Action of Dicarboxylic Acids and Their Derivatives. II. Glutaric and Malonic Acids. W. C. Rose, Urbana, Ill.—p. 147.
Procain Derivatives; Pharmacologic Action and Chemical Constitution. H. L. Schmitz and A. S. Loevenhart, Madison, Wis.—p. 159.
Local Anesthetic Properties of P-Amino Benzoyl Di-Iso-Propyl Amino Ethanol Hydrochlorid ("Isocain"), Cocain, Procain and Butyn. H. L. Schmitz and A. S. Loevenhart, Madison, Wis.—p. 167.

Nephropathic Action of Tartaric Acid.—Experiments reported on by Rose emphasize the fact that tartrates are exceedingly violent nephropathic agents. It is interesting to observe that the progressive removal of the hydroxyl groups of tartaric acid (with the production of malic and succinic acids, respectively), is accompanied by a simultaneous decrease in renal-toxic action. Of organic compounds, the difficultly oxidizable ones appear more prone to manifest renal-toxic effects. Probably compounds like succinic acid, which are readily burned in the organism, are disposed of rapidly by oxidation, and with the doses employed, do not reach the kidneys in appreciable quantities. But tartaric acid, which is slowly and incompletely oxidized, is, perhaps, disposed of chiefly by excretion, and during the course of its removal from the body leads to injury of the renal cells. If this tentative theory is correct, any alteration in chemical constitution which would result in a more rapid oxidation might be expected to diminish nephropathic properties. Conversely, any structural change which would render oxidation more difficult, might increase renal-toxic action.

Medical Journal and Record, New York

120: 309-364 (Oct. 1) 1924

Medical Education. G. Wilson, Baltimore.—p. 309.
*Treatment of Angina Pectoris. C. G. Jennings and A. F. Jennings, Detroit.—p. 311.
Inflammatory Diseases of Breast. A. J. Parker, Brooklyn.—p. 314.
What Cystoscopy of Today Means to Physician and Patient. P. S. Pelouze, Philadelphia.—p. 316.
Ten Cases of Polycythemia Vera. L. E. Verity, Battle Creek, Mich.—p. 319.
Renal Infection. J. H. Cunningham, Boston.—p. 322.
Dutch Neuropsychiatry and Its Representatives. S. E. Jelliffe, New York.—p. 324.
Heterotopia of Central Nervous System in Relation to Malformation of Body Segments and Nervous Diseases. H. Winsor, Haverford, Pa.—p. 327.
Certain Conditions Common to Most Chronic Diseases. J. M. Taylor, Philadelphia.—p. 333.
Profuse Hematuria Successfully Treated by Oral Administration of Fibrinogen. M. K. Willoughby, Morris Plains, N. J.—p. 334.
History of Diabetes. C. G. Cumston, Geneva, Switzerland.—p. 336.

Treatment of Angina Pectoris.—Jennings and Jennings review twenty-one cases of operation for angina pectoris with nineteen recoveries and two deaths. In sixteen cases the operation performed was resection of the cervical sympathetic; in five cases resection of the depressor nerve. Relief of the anginal pain was more or less complete with both operations. Either operation, therefore, cuts the pathway of

the sensory nerves from the pathologic field in angina pectoris. Whether this field be the aorta alone, as contended by Allbutt and others, or the aorta plus some areas of the heart structure, the authors believe is still an open question. This question cannot be answered until the peripheral distribution of the nerve fibers severed is finally determined. The pathway of the afferent, sensory nerves from the aorta or aorta and heart to the cord and medulla also is not determined. From the success of Wenckebach's resection of the depressor nerve it would appear that in the lower neck this nerve carries all the sensory fibers, which, as shown by the equal success of resection of the sympathetic, must join the sympathetic at some point below the superior cervical ganglion.

Philippine Journal of Science, Manila

25: 1-107 (July) 1924

*Serology of Leprosy. O. Schöbl and M. Basaca.—p. 1.
Tertiary Paleogeography of Philippines. R. E. Dickerson.—p. 11.
Absorption of Culture Solutions by Coco-Palm Roots. R. B. Espino and J. B. Juliano.—p. 51.
Japanese Lepidoptera and Larva: Part VII.—p. 75.

Serology of Leprosy.—The globulin-precipitation test recommended by Klausner for diagnostic purposes was used by Schöbl and Basaca in their study on leprosy. The precipitate that forms with positive serum behaves in many respects like globulin. It is insoluble in distilled water but soluble in physiologic sodium chlorid solution and in concentrated solution of sodium chlorid. Inactivation decreased the reactivity of the serum. The condition found in the serums of lepers and certain other patients may be conceived as an upset balance between salts and globulin, possibly euglobulin. Therefore, it has not the significance of a strictly specific immune reaction but, owing to its apparent constancy in leprosy, may prove to be of help as an adjuvant test.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of the "Pickett-Thomson" Research Laboratory, London

1: 1-216 (July) 1924

*Virus of Variola-Vaccine. D. Thomson.—p. 1.
*Etiology of Measles. D. Thomson.—p. 77.
*Etiology of Scarlet Fever. D. Thomson.—p. 115.
*Treatment and Prevention of Otorhinologic Complications of Scarlet Fever by Vaccines. T. N. V. Potts.—p. 173.
Tuberculin Test in Cattle; Fractions of Tubercle Bacillus; Detoxicated "Defatted" Tubercle Vaccine. J. J. Thomson.—p. 179.
Agglutinins and Antibodies Resulting from Injection of Detoxicated Vaccines. M. Saini.—p. 185.
*Best Methods of Detoxicating Vaccines Without Injuring Their Antigenic Properties. D. Thomson and R. Thomson.—p. 187.
Classification and Identification of Germ by Microphotography. D. Thomson and R. Thomson.—p. 195.
Treatment of Gas Poisoning Resulting from Demolition of Gas Shells. F. N. Pickett and Pils.—p. 201.

Virus of Variola Vaccine.—The general impression obtained from the voluminous literature on the subject is that the virus of vaccinia cannot be an ordinary bacterium. Thomson's researches confirm this belief. Many observers believe that the virus exists in the form of minute granules and that it is a filter passer. Thomson is convinced from his own experiments that the virus is not a filter passer. He is not inclined to believe that the Paschen granules are parasitic, but that they are artefacts. With regard to the cell inclusions which most researches agree are pathognomonic of vaccinia and variola, Thomson's observations incline him to the belief that the Guarnieri cell inclusions are parasites, and he disagrees with von Prowazek and his followers that they represent a cell reaction around an infective granule. At the same time, he admits that there are many fallacies and pitfalls, and that many inclusions are present in the lesions which represent ingested leukocytes undergoing fragmentation and digestion. He considers that the problem cannot be considered as definitely solved until these Guarnieri bodies can be successfully cultivated in large numbers so as to leave no doubt regarding their nature, and until it is definitely shown that such a culture is infective and capable of producing vesicles in susceptible animals.

Etiology of Measles.—Thomson is convinced now that the minute gram-negative anerobic diplococcus isolated by him from the throats of measles patients, and later from the throats of nonmeasles cases, is more or less identical with that isolated by Holman (1919) from the mouths of normal persons and by Holman and Krock (1923) from the oral cavity of man and rabbits. It is definitely stated by Thomson that it can hardly be the cause of measles. This is a refutation of a former claim. The organism isolated by Caronia would from his descriptions appear to be the same organism, and if this is so, then he also has erred in considering it to be the cause of measles. During the past year Thomson inoculated chick embryos with the conjunctival secretion of measles patients with more or less negative results. Chick embryo tissue cultures (Carrel's method) were also inoculated with measles blood at the commencement of the rash stage, but these failed to develop any organisms. Cultures were also made from the throat, the conjunctival secretion and from a skin papule. From the throat a streptococcus was isolated. From the skin papule was isolated a diphtheroid, a staphylococcus and a streptococcus. From the eye was isolated a gram-negative bacillus of the *Bacillus pyocyaneus* variety and a hemolytic streptococcus. From the pus of a case of measles otorrhea was isolated a streptococcus. None of these bacteria can be regarded as the cause of measles. The suspicious organisms so far which deserve further investigation are the diplococcus of Tunnicliff, the streptococci, influenzoid bacilli, and the spirochete of Salimbeni.

Etiology of Scarlet Fever.—Thomson gives a most complete review of the literature of the last forty years on the etiology of scarlet fever, including an account of his own researches. He asserts that the causative organism has not yet been discovered but agrees with others that the virus of scarlet fever is a definite variety of hemolytic streptococcus. He says: The history of man's struggle to discover the cause of this important disease during the past forty years is very interesting and if, as seems probable, it is eventually definitely proved to be due to a streptococcus, then it may truly be said that the discovery is one which has been made by no single individual alone but by a mass of patient workers who have helped to establish the fabric of proof.

Vaccines in Treatment and Prevention of Ear and Nose Complications of Scarlet Fever.—The records of 611 scarlet fever patients were reviewed by Potts. Two hundred and fifty-eight of these received prophylactic inoculations of a stock detoxicated vaccine. The number of these who subsequently developed rhinorrhea or otorrhea, or both, was twenty-five, while of the remaining 453 cases not inoculated, sixty-one developed one or other of these complications. Thus, the percentage of these complications among the previously inoculated was 9.6, and in the case of the uninoculated 13.5. The results accruing from the use of autogenous vaccines were debatable. It is Pott's belief that inoculation of the patient's own organisms can be of real service in certain chosen cases, and that these cases are probably those in which the adenoid and tonsillar tissues are not excessive, or considerably damaged by presence of previous disease.

Detoxicating Vaccines.—Their experiments have convinced the Thomsons that when bacteria and other antigens are subjected to boiling and treatment with absolute alcohol, their antigenic properties are destroyed or weakened to a very considerable extent. When treated with alkalis, such as sodium hydroxid, their antigenic properties are weakened, but the weaker the alkali used, the less is the deleterious effect produced. Alkali in a strength of one-twentieth to one-hundredth normal would appear to have little or no injurious effect in this respect. It is clear, therefore, that when germs are subjected to any drastic treatment by heat and strong chemicals, such as are used in Vaughan's process, and in Dreyer's process for the production of "defatted" vaccines, any good effects produced must largely be neutralized by the damage done to the antigenic properties of the vaccine. So far as the preparation of detoxicated vaccines is concerned, it is obvious that the use of absolute alcohol should be abandoned, and that the saline washing originally employed should be revived to replace the alcohol washing. It is clear, also, that the introduction of efficient germ

smashing machines is a great advance, since by their use the strength of the alkali used in the process is vary greatly reduced.

Calcutta Medical Journal

19: 45-98 (Aug.) 1924

*Insulin in Diabetes Mellitus. S. C. S. Gupta.—p. 45.
*Epidemic of Kala-Azar with Typhoid-Like Onset. S. C. Basu.—p. 58.
Roentgen-Rays and Tubercular Glands. N. Chakrabarti.—p. 79.
Uticaria Due to Hookworm Toxin. H. N. Bagchi.—p. 83.

Insulin in Diabetes.—Gupta reviews his experience with insulin as follows: It has permitted diabetic patients to be restored to health and strength, who were helpless previously. It has made it possible to combat acidosis, to control it and to prevent it; to rescue patients from coma who were previously helpless. Diabetics with infective diseases are treated with much better prospects and confidence. Wasting and denutrition can be prevented by giving more liberal diet along with insulin, thus saving patients from the grip of tuberculosis. Insulin has permitted diabetic patients to undergo surgical operations without great danger. Insulin has prolonged life and made it much more enjoyable.

Kala-Azar with Typhoid-Like Onset.—Basu describes in detail the features of this epidemic, especially the clinical history of the disease. It appears to have been a mixed epidemic of malaria and kala-azar, the latter preponderating. One hundred patients died in from two to fifteen days, probably from malaria. The other patients, 150, dying of cancrum oris and dysentery were cases of kala-azar. This epidemic showed that kala-azar may begin in an epidemic form and may occur simultaneously in several families; that many of the past epidemics of fever in Bengal were not diagnosed correctly; they were possibly not epidemics of either pure malaria or pure kala-azar.

Glasgow Medical Journal

102: 81-136 (Aug.) 1924

*Etiology of Failing Heart. G. A. Allan.—p. 81.
*Appendix Causes Acute Peritonitis and Acute Intestinal Obstruction. W. G. Galbraith and G. A. Pollock.—p. 97.
Case of Hydronephrosis with Double Ureters. S. R. Bain.—p. 100.

Etiology of Failing Heart.—Three hundred and twenty cases of failing heart were analyzed by Allan. Symptoms were complained of as follows: Breathlessness, 279 cases; pain, 130; palpitation, 107; exhaustion, 78; cough, 68; hemoptysis, 37; giddiness, 23; faintness, 14; embolism, 14; dropsy, 125 cases. Of the total of 320 cases of failing heart, 242 were valvular cases and 78 myocardial cases. Of the 320 cases, 148 were definitely rheumatic. Of the 242 valvular cases, rheumatism was the cause in 145. Definite syphilitic infection was noted in 63 of all the cases, and in 53 of the valvular cases. It reached its highest percentage in pure aortic incompetence, in which evidence of syphilis was obtained in 70.75 per cent. of the male cases and 66.66 per cent. of the female cases. The Wassermann reaction was positive in 51 of the 63 cases; in the other 12 cases the Wassermann test was not applied, but there was definite clinical evidence of the infection. Evidence of syphilis was not obtained in any case of pure mitral stenosis, or of combined mitral stenosis and aortic incompetence in either sex. Renal disease, or arteriosclerosis, occupies the third place in etiologic factors. It was present in 28 cases, or 8.75 per cent. of the total, but when the 78 myocardial cases are considered alone, it was found to account for 27, or 34.6 per cent. of these, and in this group it is the commonest etiologic factor. Other etiologic factors occurred too seldom for the figures to be of any special value. Auricular fibrillation was present in 27 per cent. of the cases in this series, and in 28 per cent. of those patients who died. While syphilis was present in 20 per cent. of all cases, it was noted in 29 per cent. of those patients who died; rheumatism was noted in 46 per cent. of all cases, but only in 43 per cent. of those who died.

Appendicitis, Peritonitis, Intestinal Obstruction.—In the case cited by Galbraith and Pollock the tip of the appendix was curled, gangrenous, perforated, firmly adherent to the under surface of the root of the mesentery, and forming the nucleus of an abscess which had ruptured. Under the appendix was herniated the terminal foot of the ileum, collapsed (in contradistinction to the dilated condition of the rest of the small intestine), and with a well marked constriction ring at each end.

Lancet, London

2: 635-684 (Sept. 27) 1924

Radiotherapeutics of Cancer. F. Hernaman-Johnson.—p. 635.
*Nephritis. G. L. M. Smith and J. Eason.—p. 639.
Exercises in Pulmonary Tuberculosis. H. O. Blanford.—p. 646.
*Insulin in Operations on Diabetic. H. S. Pemberton and L. Cunningham.—p. 647.
*Metastatic Gas Gangrene. J. R. Learmonth.—p. 648.
Injuries About Elbow Joint. V. F. Soothill.—p. 649.
*Vaginal Hemorrhage from Perforating Endothelioma. W. B. Cosens.—p. 650.

Heredity of Nephritis.—That nephritis may be hereditary, familial, or congenital is well shown in the families described by Hurst and others. It would seem that a familial predisposition to nephritis exists in a series of cases instanced by Eason and Smith and notably in two families. In one family there was an association of apoplexy and nephritis, six members of the family being affected by one or both lesions. The discovered onset was at or after middle life. In the second family there were seven cases, of which five were discovered in childhood or adolescence. Four of the cases in this family were diagnosed within a few weeks of one another. That the actual origin was not recent, but of some years' standing, is evident from the fact that the arteries in three cases were thickened, the blood pressure high, and the nonprotein nitrogen of the blood high. No definite etiologic factor could be found in these cases to account for eihter the nephritis, high blood pressure, or thickened arteries. Syphilis is discounted by a negative Wassermann reaction in all cases. There is no history of scarlet fever or influenza in any of the cases. In one case there is a definite history of chill immediately preceding the onset of the disease. Pure growths of nonhemolytic streptococci were obtained from the blood and urine of two patients on admission to hospital. Blood cultures carried out for four months later yielded no growth. A streptococcus was obtained twice from the urine of one patient while in hospital, and again on his return for a later examination. The types of streptococci isolated from the blood and urine were biochemically identical with those obtained from the teeth, tonsils, and tonsilar region. There is considerable evidence for the conclusion that the teeth and tonsils may be regarded as among the important primary sources of infection, and probable portals of entry for hematogenous infection. Experimental evidence is given on the causation of nephritis by a nonhemolytic streptococcus isolated from cases of subacute nephritis.

Insulin in Operations on Diabetics.—Ether anesthesia in the diabetic produces a more severe hyperglycemia and a greater fall in the alkali reserve than in a nondiabetic. Pemberton and Cunningham state that they may be controlled by the preoperative, intra-operative and postoperative use of insulin. In spite of the administration of insulin, the postoperative complication of sepsis appears to maintain both hyperglycemia and a low alkali reserve; the latter may be restored by alkali therapy.

Metastatic Gas Gangrene.—Learmonth's patient had a perforated gastric ulcer. He was operated on and survived although his condition was grave. He improved during the next two days but early in the morning of the third day he complained of pain in the upper right arm. The skin over this area was a dusky purple color and insensitive and crepitation could be elicited over its whole extent. The patient died seventy-two hours after the perforation of his ulcer. Bacteriologic examination of some material from the arm disclosed *B. welchii*.

Vaginal Hemorrhage from Tumor.—In the case cited by Cosens, a girl, aged 20, had a severe vaginal hemorrhage which proved to be caused by a fibrohemangio-endothelioma of the retroperitoneal space between the bladder and the vagina. The tumor weighed slightly more than 1 pound. The hemorrhage was due to a perforation of the vaginal arteries in the site of an abscess cavity situated between the anterior fornix and the tumor.

Journal de Chirurgie, Paris

24: 257-384 (Sept.) 1924

*Intestinal Perforation in Typhoid. R. Gueullette.—p. 257.
Grave Infections of Dental Origin. T. Asteriadès.—p. 276.

Intestinal Perforation in Typhoid. — Gueullette advocates surgical intervention even on mere suspicion of perforation of the bowel in typhoid fever. The cases of recovery under medical measures alone were probably not true perforations. He states that postoperative recovery occurred in 38 per cent. of the 280 cases since 1908 he has found on record, while American statistics show from 30 to 35 per cent. He tabulates the details of the forty-seven successful operative cases since 1908. The list includes eight cases of walking typhoid.

Paris Médical

233-244 (Sept. 27) 1924

Fundamentals of Treatment in Pediatrics. P. Lereboullet.—p. 233.
*Erroneous Diagnosis of Tetanus. Bérard and Lumière.—p. 239.
*Blood Examination in Lead Poisoning. Feil and Heim.—p. 241.

Errors in Diagnosis of Tetanus.—Bérard and Lumière cite seven cases of meningitis, serum sickness, acute rheumatism, scarlet fever or toxic neuritis in which an erroneous diagnosis of tetanus had been made. Contractions and trismus, developing in some of these patients after trauma, were the misleading elements in the clinical picture.

Value of Blood Examination in Lead Poisoning.—Feil and Heim report a case of lead poisoning with a fatal issue. While there had been no clinical manifestations of plumbism, intense changes in the blood had been noted early, and they continued a progressive course. The increase in the erythrocytes with basophilic stippling was proportional to the duration of the plumbism. Nucleated erythrocytes were present in the more advanced phases of the poisoning. Lymphocytosis occurred in the beginning, and disappeared afterward. The man was in the habit of baking potatoes for his lunch in the oven in which the minium was dehydrated. The whole course to the terminal pneumonia was only a few months.

Presse Médicale, Paris

32: 769-776 (Sept. 24) 1924

*Vitamin Deficiency and Infantile Atrophy. Mouriquand et al.—p. 769.
*Preventive Serum Therapy in Operations. Cerf and Pauly.—p. 770.
Heredity in Cancer. H. Vignes.—p. 772.

Experimental Atrophy by Vitamin C Deficiency.—Mouriquand, Michel, Bertoye and Bernheim induced scurvy in 317 healthy guinea-pigs, of different ages, by feeding with a ration deficient in vitamin C. All the adult animals recovered when given an antiscorbutic diet. Manifestations similar to those of infantile atrophy developed in 65 per cent. of the young, although the symptoms of scurvy had disappeared. In this group of fifteen the manifestations of marasmus were exactly alike in all, and all died in progressive cachexia. The microscopic findings showed grave lesions in the organs controlling the nutrition, the same as in infantile atrophy. The hypothesis is that avitaminosis C, which produces a syndrome of athrepsia type in animals, may be the causal factor in infantile atrophy.

Pneumococcus Antiserum in Prophylaxis of Postoperative Lung Complications.—Cerf and Pauly advocate preventive immunization in all surgical interventions, especially on the stomach. They obtain a passive immunity with injection of a polyvalent antipneumococcus serum. Basing their procedure on Besredka's experiments, they administer the injection when the patient is under the anesthetic, to ward off anaphylactic shock. No primary disturbances were noted in 1,300 own cases, and in 1,200 cited. Tardy reactions of serum sickness occurred in 8 per cent. of the cases, appearing about the eighth day, and persisting one or two days. Pulmonary complications, manifest in 20 per cent. of operations on the stomach before the immunization procedure had been used, have not appeared since. They claim that the postoperative course is more favorable, and the recovery more rapid, following the injection, which seems to enhance the resistance of the organism.

32: 777-784 (Sept. 27) 1924

Obliteration of Coronary Arteries. Clerc and Deschamps.—p. 777.
Mechanism of Immunity to Diphtheria. C. Zoeller.—p. 779.
Pathogenesis of Hemorrhagic Conditions. M. Erlich.—p. 782.
Calcium by the Vein in Surgical Tuberculosis. L. Cheinisse.—p. 783.

32: 785-792 (Oct. 1) 1924

*Encephalitis in Parkinsonian Phase. Guillain et al.—p. 785.
Surgery of Sympathetic Nerve. R. Leriche.—p. 785.
Radiography of Fetus in Uterus. Favreau et al.—p. 786.
Subungual Hematoma and Tetanus. G. Ferry.—p. 788.
Ratio Between the Hemoglobin and the Size and Numbers of Erythrocytes. J. J. de Jong.—p. 789.

Epidemic Encephalitis Communicable in Parkinsonian Phase.—Guillain, Alajouanine and Celice report the case of a young man who developed epidemic encephalitis in the ward, while his bed was between two patients with the parkinsonian postencephalitic syndrome. One of these patients still had occasional attacks of fever. Such patients should be isolated, and preventive measures employed.

Schweizerische medizinische Wochenschrift, Basel

54: 881-904 (Sept. 25) 1924

Prevention of Sexual Delinquencies. C. Strasser.—p. 881. Cont'd.
*Leukocytes and Function of the Thyroid. A. Niderberger.—p. 886.
*Surgical Treatment of Cretinism. S. Chaitan.—p. 894.

Leukocytes and Function of the Thyroid.—Niderberger finds that there are no characteristic changes of the leukocytes in various types of goiter. Exophthalmic goiter causes usually a decrease in neutrophils. Lymphocytosis is pronounced in exophthalmic goiter, but it is found also in other types of goiter.

Surgical Treatment of Cretinism.—Chaitan removed the diseased parts of the thyroids in fifty-seven cretins. The operation was indicated because of compression of the trachea. He observed an improvement of the psychic condition in 23 per cent. of them and an impairment in 16 per cent. Although the improvement may be due partly to relief from compression of the healthy tissues and better breathing, the author considers the theory of dysthyroidism in cretins as possible.

Pediatria, Naples

32: 1065-1128 (Sept. 15) 1924

*Etiology of Ozena. I. Nasso and U. Tassi.—p. 1065.
*Water Content of Serum. G. Albano.—p. 1074.
*Roentgen Treatment of Poliomyelitis. L. Turano.—p. 1081.
*Agent of Measles in Cerebrospinal Fluid. C. Catteruccia.—p. 1101.
Mortality Statistics. F. Lo Presti-Seminerio.—p. 1104.
Disturbances of Thermoregulation. R. Pollitzer.—p. 1114.

Etiology of Ozena.—Nasso and Tassi inoculated Tarozzi-Noguchi's mediums with filtrates from emulsions of nasal crusts. They obtained from twenty-four patients with ozena a growth identical with that described by other authors in scarlet fever, measles and hydrophobia. The rare minute cocci were usually in groups of ten or twelve. Agglutination and complement fixation were positive in the majority of patients, and of the inoculated rabbits. The latter developed a rhinitis about twenty-six days after inoculation.

Water Content of Serum.—Albano confirms the greater dilution of retroplacental blood when compared with the circulating blood of the mother. The serum of the new-born contains more water than the serum obtained from the retroplacental hematoma.

Roentgen Treatment of Poliomyelitis.—Turano irradiated with roentgen rays the affected parts of the spinal cord in acute anterior poliomyelitis. He confirms Bordier's results. If applied early he believes that there is no better method of treatment.

Agent of Measles in Cerebrospinal Fluid.—Catteruccia, working at Caronia's clinic, reports his findings on the presence of Caronia's germ in the cerebrospinal fluid of measles patients in the eruption stage.

Policlinico, Rome

31: 1195-1226 (Sept. 15) 1924

*Treatment of Varicocele. E. Fiorini.—p. 1195.
*Condyloma Acuminatum from Extragenital Infection. Brisotto.—p. 1199.
Patch of Sclerosis in Penis. T. Guerrieri.—p. 1201.

Treatment of Varicocele.—Fiorini combines excision of the spermatic veins with eversion of tunica vaginalis propria and suspension of the testis to the external inguinal ring. Excision of the main veins in rabbits is followed by atrophy of the testis.

Condyloma Acuminatum from Extragenital Infection.—Brisotto observed condylomas in the mouth and lips of two children. The disease had not been recognized by the previous physicians. Both children recovered after antisyphilitic treatment.

31: 1227-1257 (Sept. 22) 1924

*Preservation of Bacilli of Typhoid Group. Totire-Ippoliti.—p. 1227.
Roentgen-Ray Treatment of Aplastic Anemia. M. Faberi.—p. 1229.
A. Bassi. F. Cicardi.—p. 1232.

Preservation of Bacilli of Typhoid Group.—Totire-Ippoliti publishes further observations on the long survival (fifteen years) of germs of the typhoid-colon group in various infusions of organic matter. The bacilli also preserved their virulence.

Riforma Medica, Naples

40: 889-912 (Sept. 22) 1924

*Homolateral Hemoptysis in Pneumothorax. G. Izar.—p. 889.
*Addisonian Signs in Syphilis. A. Oro.—p. 890.
Melanoplakia of the Mouth. Armuzzi and Strempel.—p. 894.
Classification of Mineral Waters. D. Barduzzi.—p. 896.
*Grave Measles in Calabria. N. Mantegna.—p. 897.

Homolateral Hemoptysis in Pneumothorax.—Izar observed two instances of hemoptysis occurring a few days after refilling of a pneumothorax. The intrathoracic pressure at this time was negative (−12, −14, respectively). The hemorrhage was arrested by introduction of gas until a positive pressure (+3, +5) was obtained. He attributes the hemorrhage to the rapid distention of the lungs due to increased absorption of gas by an inflamed pleura.

Addisonian Signs in Syphilis.—Oro's two syphilitic patients with a partial and a complete addisonian syndrome recovered after specific treatment. Even the pigmented skin became almost normal. He publishes the necropsy findings in a third case.

Grave Measles in Calabria.—Mantegna describes an epidemic of measles in a city of 15,000 inhabitants. The morbidity was not extraordinary, but the mortality was high (fifty-three deaths).

Rivista di Clinica Pediatrica, Florence

22: 577-648 (Sept.) 1924

*Pathologic Creatinuria in Children. G. Frontali.—p. 577.
Myopathies in Infants. G. Fiore.—p. 606.

Pathologic Creatinuria in Children.—Frontali studied the effect of ingestion of 40-150 gm. of cane sugar on the creatinuria in children. It was without action in acute poliomyelitis and pseudohypertrophic atrophy of muscle, which are both characterized by trophic changes of muscles. It suppressed the creatinuria in chorea.

Prensa Médica Argentina, Buenos Aires

11: 257-292 (Aug. 20) 1924

*Sagging Stomach. T. Martini and J. Comas.—p. 257.
*Grave Anemia in Young Children. Navarro and Munin.—p. 266.
*Transmissible Sarcoma in Hen. A. H. Roffo.—p. 271.
Teaching of Anatomy. Avelino Gutierrez.—p. 275. Conc'n.

Gastroptosis.—Martini and Comas protest that this term is erroneous, as the stomach is not displaced downward; it merely stretches. They urge the advantage of radioscopy of the empty stomach; then again after merely a swallow of the contrast suspension, and again after ingestion of the whole amount. Then they have the patient push up his stomach with both hands to see what may be anticipated from a supporting device. It is important to compare the roentgen-ray findings with the patient erect and reclining, but they warn that the pressure on the abdomen in the prone position may distort actual conditions.

Grave Anemia in Young Children.—Transfusion of the mother's or father's blood in the two cases described aided materially in the cure of the grave anemia with enlarged spleen. One infant had been breast fed, and the clinical picture was that of pseudoleukemic anemia, except for the subacute, febrile course and the rapid recovery under the hemotherapy and arsenical treatment, although there was nothing to suggest syphilis in the family. The other patient was a girl of 5 with typical anemia with splenomegaly. Under the same treatment there was slow improvement, but the clinical picture returned after an intercurrent influenza, and the hemoglobin percentage is still only 65.

Chicken Sarcoma.—Roffo gives colored plates of the findings in a spontaneous round-cell sarcoma in a hen, with numerous metastases. Attempts at transmission proved successful in one cock. The tumor differed in structure and mode of transmission from the Peyton Rous sarcomas.

11: 321-352 (Sept. 10) 1924

*Case of Bronchial Mycosis. M. R. Castex et al.—p. 321.
*Cholesterolemia in Pulmonary Tuberculosis. J. Palacio.—p. 328.
Mammary Cancer Mummified by Roentgen Rays. Roffo and Moner.—p. 335.

Case of Bronchial Mycosis.—This profusely illustrated article describes the puzzling clinical features presented by the young man who proved to have both amebiasis and a hemorrhagic bronchomycosis, a moniliasis. The latter subsided under potassium iodid treatment.

Cholesterolemia in Pulmonary Tuberculosis. — Palacio tabulates under eight headings the findings, as to the phase and character of the disease and the sputum, of forty-one patients with hypocholesterolemia; in forty-seven with normal, and in twelve with excessive cholesterol content of the blood. The lower the amount, the less favorable the prognosis.

Revista Española de Medicina y Cirugía, Barcelona

7: 445-508 (Aug.) 1924

*Chromogen of Methylene-Blue in Diagnosis. J. Cuatrecasas.—p. 445.
Constitutional Anomalies of Male Genital Organs. C. Posner.—p. 451.
*Staphylococcus Cavity in Lung. F. Gil Acevedo.—p. 454.
Alastrim and Imported Varioliform Diseases in Spain. J. Salvat Martí.—p. 459.

Methylene Blue Test of Kidney Function.—Cuatrecasas concludes from his study of twenty-five cases that the elimination of methylene blue occurs along the same lines as reduction and elimination of bilirubin and urobilin. Methylene blue has a threshold of reduction, below which only its chromogen is eliminated. The reducing power seems to increase as the kidneys become less permeable. If it should prove that chromogen is more diffusible than the blue, the reduction might be considered as a kind of vicarious renal function exercised by the tissues. In nephritis with retention of urea, nearly all the stain is eliminated in the form of chromogen, while with retention of chlorids alone, there is scanty elimination of chromogen with good output of the blue. This would seem to indicate impaired reducing power in the tissues.

Staphylococcus Cavity in Lung.—In Gil Acevedo's two cases the clinical picture indicated tuberculosis as responsible for the large cavity in the lung, but no tubercle bacilli could be discovered. The fever was remittent, irregular, with evening peaks followed at once by profuse sweats. The onset had been abrupt, with symptoms suggesting acute infection; the pain and dyspnea were continuous but not so pronounced as in pneumonia, and expectoration was purulent and profuse, suggesting a vomica at first. The pus contained staphylococci, the apices were apparently normal, and the focus was single. Both young men recovered under symptomatic treatment and a staphylococcus antiserum, but the future of the crippled lung is dubious.

Archiv für Kinderheilkunde, Stuttgart

75: 1-80 (Sept. 20) 1924

*Growth and the Seasons. H. Frank.—p. 1.
*Starch Digestion in Infants. H. Simchen.—p. 6.
Codein in Pediatrics. H. Wagemann.—p. 12.
*Transient Paralysis of Neck Muscles. E. Hindess.—p. 19.
Fate of the Prematurely Born. H. Fotschner-Böke.—p. 20.
Phenomena of Eyelid Reflexes. J. S. Galant.—p. 37.
The Differential Blood Count in Infants. G. Ockel.—p. 40.

*Acute Lymphogranulomatosis in Infant. E. Levy.—p. 49.
Intestinal Worms in Pediatrics. F. Goebel.—p. 52.

Seasonal Growth in Infants.—Frank has been studying on 100 healthy infants, aged from 1 to 24 months, the connection which may exist between growth in length and the seasons of the year. The infants have been under observation over a year, and were measured every four weeks. The examination showed a pronounced increase in growth from April to June, a lesser increase from September to November and a standstill during the summer months, and again in December and January. The curve begins to rise in February. Frank suggests that in spring and fall the endocrine glands may secrete more, or some more active substance during the spring, due to a higher content of vitamins in the food at this period, especially in milk.

Digestion of Starch in Infants.—Using for over four years a daily iodin test in the stools of infants getting some farinaceous food, Simchen found that the digestion of starch starts in the first days after birth, and keeps gradually increasing. A residue of starch in the feces, if this is the only sign of morbid conditions, may not interfere with the development of the child. Intestinal disturbances and general diseases frequently impair starch digestion. Undigested starch may precede an intestinal disease by several days. The starch may disappear from the stools on standing, owing to a secondary digestion produced by the presence of the diastase ferment. This proves that the starch had not been fully utilized, due merely to an inadequate sojourn of the food in the small intestine.

Transient Paralysis of Neck Muscles in Digestive Disturbances.—Hindess calls attention to the phenomenon which he noted in several children with disturbed digestion, aged from 1 to 2 years. The children, all breast fed, had slight rickets, but there was no history or sign of other disease. The child could not keep his head up. Passive movements did not cause pain. The nutrition had been disturbed, and in some cases local edema and a general dropsy appeared. The phenomenon persisted for two or three days, and disappeared spontaneously. He says that it may be a symptom of hysteria, evoked by an abnormal attitude of the head, or it may be due to some intestinal poison causing a functional disturbance, without changes in the central or peripheral nervous system. Hindess claims to be the first in describing this phenomenon.

Lymphogranulomatosis in an Infant.—Levy reports a case of acute lymphogranulomatosis after pneumonia in a boy, aged 18 months. The clinical features were similar to miliary tuberculosis, or general sepsis. Blood examination suggested the diagnosis, which was confirmed by the necropsy.

Archiv für klinische Chirurgie, Berlin

131: 1-520 (Sept. 23) 1924. Dedicated to V. von Hacker

*Blocking the Splanchnic Nerves. H. Finsterer.—p. 1.
Relaparotomy After Gastric Ulcer Operations. M. Hofmann.—p. 27.
*Gastric Ulcer-Cancer. H. Finsterer.—p. 71.
*Treatment of Duodenal Ulcer. H. Finsterer.—p. 119.
*Peptic Ulcer After Gastro-Enterostomy. J. Zipper.—p. 154.
Benign Gastro-Intestinal Tumors. E. Bouvier.—p. 163.
Retrograde Esophagoscopy. G. Lotheissen.—p. 185.
*Cancer of the Esophagus. G. Lotheissen.—p. 200.
*Treatment of Esophageal Stricture. K. Tiesenhausen.—p. 226.
Extensive Resection of Intestines. M. Hofmann.—p. 251.
Local Anesthesia in Removal of Colon Cancer. Finsterer.—p. 269.
Enterostomy. F. Lemperg.—p. 288.
Rupture of Intestine from Lifting Strain. Gangl.—p. 292.
Another Case of "Iced" Intestine. K. Tiesenhausen.—p. 296.
Diagnosis and Treatment of Suppurative Colitis. J. Hertle.—p. 301.
Diagnosis and Treatment of Acute Pancreatitis. R. Höfer.—p. 313.
Access to Pancreas from the Rear. E. Streissler.—p. 327.
Reconstruction of Lower Lip. M. Hofmann.—p. 338.
Tracheoplasty. G. O. Kindig.—p. 343.
*Correction of Paralysis of Lower Lip. Schmerz.—p. 353.
Treatment of Pleural Empyema. H. Schmerz.—p. 361.
Experimental Research on Relations Between the Thyroid and Female Genital Organs. H. Knaus.—p. 412.
Etiology of König's Dissecting Osteochrondritis. A. Leh.—p. 425.
Operative Cure in Posterior Spondylitis. Lemperg and de Crinis.—p. 453.
Softening and Stunting of Bones in Addison's Disease. Leb.—p. 459.
Luxations in the Foot. K. Florian.—p. 474.
Some Misleading Sarcomas. F. Lemperg.—p. 487.
Primary Angiomas in Muscle. F. Fürnau.—p. 495.
Deep Subpectoral Phlegmons. Höfer.—p. 502.
Suture of Duodenal Stump. M. Hofmann.—p. 509.
Diagnosis and Anatomy of Otitis Media. F. Lemperg.—p. 511.
Differential Diagnosis of Acute Appendicitis. Zipper.—p. 514.
*Primary Cancer of the Liver. F. Fürnau.—p. 518.

Blocking the Splanchnic Nerves for Major Operations.—Finsterer prefers the Braun to the Kappis technic for splanchnicus anesthesia, and ascribes to the use of local, rather than general, anesthesia his success in 639 resection operations on the stomach, and especially in the group of 62 patients between 60 and 76 years old, none of whom succumbed to operative shock or pneumonia. The total mortality was 5 per cent. but only 3.6 per cent. in the years since the war. These and his experiences with other abdominal operations have convinced him that blocking the splanchnic nerves will abolish operative shock and will reduce postoperative pneumonia to the minimum. He has applied the Braun technic in 508 operations to date.

Ulcer-Cancer of the Stomach.—Finsterer affirms that malignant degeneration occurs so often that resection of a gastric ulcer may be regarded as an early operation for cancer. The results are far from satisfactory because too little stomach tissue is removed and because an ulcer-cancer is generally of the infiltrating type of malignant disease, the prognosis of which is unfavorable. It is impossible, he thinks, to determine whether cancer is already installed even with direct microscopic examination. More convincing is the transformation of the symptoms from the ulcer with the onset of malignant degeneration, especially the subsidence of the hyperacidity disturbances, the total loss of appetite, and the dislike of meat. Internists, even those who otherwise oppose operative treatment of chronic ulcer, should be on the watch for these signs of encroaching cancer. At least two thirds of the stomach must then be removed. He gives the details of twenty-three certain and of nine probable instances of malignant degeneration of a gastric ulcer.

Duodenal Ulcer.—Finsterer describes his method of resection of the stomach when the duodenal ulcer cannot be excised.

Peptic Ulcer After Gastro-Enterostomy.—Zipper states that no instances of peptic ulcer have been known after gastro-enterostomy in the Hacker clinic, and only five in the last twelve years in which the gastro-enterostomy had been applied elsewhere.

Cancer of the Esophagus.—Lotheissen remarks that only Torek's patient, of the 100 on record treated by radical resection, was known to have survived for more than ten years. The only hope is in recognizing the malignant disease and its removal in an early phase. To aid in this he gives the details of ten personal cases, all with necropsy findings.

Dilatation of Stricture in the Esophagus.—In 27 cases all were cured or much improved by bougie treatment alone. In 11 other cases the bougies had to be applied through a gastrostomy. In 23 other cases the stenosis was conquered by the string "endless" method of dilatation after failure of other measures. About 62 per cent. were cured in the first group; 25 per cent. in the second, and 95 per cent. in the third, while a further percentage of 12 to 14 were improved in each group. The mortality in the three groups was 7, 64 and 4 per cent.

Operative Correction of Paralysis of Lower Lip.—Schmerz draws up the sagging corner by resecting a wedge from the corner of the lower lip, the base of the wedge corresponding to the width of the paralyzed muscle.

Symptoms of Primary Cancer in the Liver.—The man, aged 64, had had dull pains from time to time in the region of the liver and occasionally slight syncopal attacks. Then suddenly profuse internal hemorrhage was explained by a malignant tumor found in the liver, with a cavity filled with blood. A ruptured vein was seen in the vascular connection between the tumor and the transverse mesocolon.

Deutsche medizinische Wochenschrift, Berlin

50: 1315-1356 (Sept. 26) 1924

General Pharmacology. H. Handovsky.—p. 1315.
Anthropometry and Constitution. L. Borchardt.—p. 1318.
*The Physiology of Work. E. Atzler.—p. 1320. Conc'n.

*Psychology of Reports on the Supernatural. R. Sommer.—p. 1323.
*Hyperthyroidism and Blood Calcium. E. Herzfeld and J. Neuburger.—p. 1324.
*Giemsa Stain with Buffers. W. A. Collier.—p. 1325.
*Insulin in Ophthalmology. E. Grafe.—p. 1325.
*Typhoid at Alfeld. W. Gottstein.—p. 1327.
Treatment of Malaria. H. Ziemann.—p. 1329.
*Etiology of Foot and Mouth Disease. Pfeiler.—p. 1331. Reply. Guth.—p. 1332. Reply. Frosch and Dahmen.—p. 1332.
*Mendel's Laws and the Physician. A. Greil.—p. 1333.
Structure of the Petrosal Bone. M. Meyer.—p. 1335.
Recent Research on Atoms. H. Kästner.—p. 1337. Cont'n.
Some Medicolegal Cases. Ebermayer.—p. 1338.
History of Wound Clamps. C. Schelenz.—p. 1339.

The Physiology of Work.—Atzler's article was reviewed in the Berlin Letter, p. 1350.

Psychology of Reports on the Supernatural.—Sommer exposed for thirty seconds in a dark room a fluorescent picture of a woman's face and draped torso, and recorded the impressions of the picture as perceived by his students. They varied from "a white spot," to the "profile of a gentleman changing into an old woman." Only one out of eleven gave an approximately correct description of the picture which was *en face*. He finds that the feeling of something supernatural arises when a phenomenon occurs suddenly without the possibility of comprehending it at that time. He mentions a very successful pair of artists and his discovery of the complicated method by which they produced telepathic phenomena. He was surprised when they explained to him the simple trick which they used for their "telekinetic experiments."

Hyperthyroidism and Blood Calcium.—Herzfeld and Neuburger determined the serum calcium in nineteen hyperthyroid patients. In only one third was it normal. The rest had figures which were above or below normal.

Giemsa Stain with Buffers.—Collier found a p_H of 7.1 as the optimum for the Giemsa stain. He obtains this concentration by using an m/50 phosphatic buffer. This makes him independent of the quality of water used.

Insulin in Ophthalmology.—Grafe discusses the effects of insulin injections on the eyes in diabetics. The low tension of the eyeball rises to normal. This is perhaps a partial protection against retinitis, because he observed a disappearance of the latter during the development of a glaucoma. The changes of ions following insulin injection may be even more important for the prevention of cataract than the reduction of the blood sugar.

Typhoid at Alfeld.—Gottstein reports his experience in the epidemic of 950 reported cases of typhoid in a population of 12,000. The disease was especially grave in patients in whom the onset was sudden. The usually milder types in children are dangerous for the spread of contagion. The disturbance of the nervous system in children does not depend on the severity of the infection. Aphasia was frequent.

Etiology of Foot and Mouth Disease.—Pfeiler claims priority in the discovery of the germ of foot and mouth disease. Guth, as well as Frosch and Dahmen, answer that he still keeps his method secret. His claim cannot be controlled and is therefore without scientific value.

Mendel's Laws and the Physician.—Greil takes exception to almost every practical consequence of Mendel's theory, and its present development. He finds it astonishing that scientists draw conclusions on the organism as a whole from a few superficial characters, which have nothing to do with the whole constitution. To assume factors and combinations of gens which cause abnormalities of human constitution by simple analogy with the factors of the color, etc., of blossoms, means to delay the important question of their physical-chemical exploration. It is impossible to compare a sick human being so simply with a yellow pea. He believes that mendelism is almost without any significance whatever for practical medicine—even if the closest relatives would breed a large number of children. He agrees with Hertz that almost no consequences remain from Mendel's thesis. The classic pea type is one of the rarest exceptions, and even in these, yellow-greenish seeds were observed, besides the regular splitting. The chromosomes are organelles for the metabolism of cells. A change of one influences the others. Very few qualities can "mendel." Everything else is conditioned in a complex manner, and cannot be localized in the cell—and the human ontogenetic acquirements belong in this very group. The gravest abnormities may result from the united absolutely healthy ovum and spermatozoon by the change of conditions following the expulsion of these cells. He concludes that the physician—fortunately for humanity—can expect practically nothing from mendelism.

Klinische Wochenschrift, Berlin

3: 1745-1792 (Sept. 23) 1924

Work of Growing Bone. H. Maass.—p. 1745.
*Hormones and the p_H. H. Zondek and H. Ucko.—p. 1752.
*Phenoltetrachlorphthalein Liver Test. R. Kunfi.—p. 1753.
*Cerebrospinal Fluid with Admixture of Blood. Wüllenweber.—p. 1756.
*Salt Reactions on Skin. S. Bommer.—p. 1758.
Pharmacology of Silver Preparations. Jacobsohn and Langer.—p. 1760.
*Goiter Prevention. H. Zeller.—p. 1763.
Albumin A Reaction. H. Kahn.—p. 1764.
*Active Substances of Thyroid. Abelin and Scheinfinkel.—p. 1764.
*Stimulation of the Pneumogastric. N. Scheinfinkel.—p. 1765.
*Cholesterol and Water Metabolism. Heilig and Lederer.—p. 1765.
Periarteritis Nodosa. P. Hampeln.—p. 1766.
*Dermatitis After Substitutes. E. Galewsky.—p. 1767.
Welfare Work in Psychiatry. Raecke.—p. 1769.
*Pharmacology of Phosphorus Treatment. K. Engel.—p. 1771.
Microsedimentation Test. E. Kaufmann.—p. 1790.

Hormones and the p_H.—Zondek and Ucko tested the influence of thyroid extracts on the metamorphosis of tadpoles in various concentrations of hydrogen ions. They found a minimum between 7 and 7.7 p_H (about the p_H of the blood) and a marked action between 6.4 and 7. They believe that the hormones are inactive in blood because of its reaction, and are "tuned in" at the periphery by changes of the concentration of various ions, including hydrogen and hydroxyl. This may account for the difficulty in demonstrating biologically the presence of hormones in the blood.

Phenoltetrachlorphthalein Liver Test.—Kunfi reports excellent results in 50 patients and controls with Rosenthal's phenoltetrachlorphthalein test of liver function.

Cerebrospinal Fluid with Admixture of Blood.—Wüllenweber used the mastic reaction with cerebrospinal fluids mixed with blood. He was able to diagnose with this reagent the curve characteristic of paralysis in fluids containing less than 120,000 erythrocytes per cubic millimeter. Colloidal gold is too sensitive for this. When the number of red cells was under 30,000, the paralysis curve was typical.

Salt Reactions on Skin.—Bommer injected intracutaneously solutions and mixtures of chlorids of sodium, potassium, calcium and magnesium. He found typical local reactions. Potassium chlorid caused a burning sensation, even when used in a concentration of 0.0058 per cent. in physiologic sodium chlorid solution. He believes that liberation of potassium from destroyed cells may account for the burning pain in acute inflammation.

Goiter Prevention.—Zeller is skeptical in regard to the results of prevention of goiter with small doses of iodin in Stuttgart. Measuring the circumference of the neck is not a suitable method for gaging the results. The impression was good at first, but he attributes the majority of reported good results to the subjective attitude of the examining physician.

Active Substances of Thyroid in the Organism.—Abelin and Scheinfinkel fed and injected animals with preparations of the thyroid gland and with dijodtyrosin. The blood, liver and spleen of these animals had no influence on the metamorphosis of tadpoles, although thyroid extracts mixed with blood had a marked influence, even after weeks. The urine of rats fed with dijodtyrosin was also active.

Stimulation of the Pneumogastric.—Scheinfinkel found an increased concentration of potassium in the perfusing fluid from hearts which had been brought to a standstill by a stimulation of the pneumogastric nerve. This is a confirmation of Howell's and Asher's theories on the chemical mechanism of the action of this nerve.

Cholesterol and Water Metabolism.—Heilig and Lederer studied the changes of concentration of blood cholesterol after the action of diuretics. They found an increase of cholesterol in hydremia; a decrease, with inspissation of the

blood. The only exception was in diabetes insipidus; after injections of a mercurial compound, the cholesterol increased with the dehydration of the blood.

Dermatitis After Substitutes.—Galewsky describes some dermatoses which were observed during the war. They were due to the various substitutes used at that time. Lubricating oil was a frequent cause. Melanosis of the skin occurred chiefly in women, and was probably caused by a photosensitization of the skin by the food. The prognosis was favorable. Eczema of the forehead from the artificial leather in hatbands, and inflammation of hands and thighs from boxes of matches containing a substitute for phosphorus, have been reported. Tetralin used instead of turpentine, and incompletely oxidized paraphenylendiamin were also among the causes—the latter especially in furs and hair dyes.

Pharmacology of Phosphorus Treatment.—Engel reviews the history and pharmacology of phosphorus treatment. He believes that it has an important influence on the metabolism, blood formation, and action of organs, including the heart. He attributes the therapeutic failures to overdosage, and recommends to use 5-10 drops of a 0.001 per cent. alcoholic solution, on the tongue.

Medizinische Klinik, Berlin

20: 1311-1346 (Sept 21) 1924

Treatment of Wound Infection. O. Kleinschmidt.—p. 1311.
*Intracutaneous Injection. F. Hoff.—p. 1315.
*Localization of Center for Sleep. E. Adler.—p. 1321.
*Sleep Centers in the Midbrain. E. Hirsch.—p. 1322.
*Septic Tonsillitis with Agranulocytosis. Lauter.—p. 1324.
*Malaria Treatment of Neurosyphilis. G. Scherber and O. Albrecht.—p. 1326. Conc'n.
*Adiposogenital Dystrophia. E. J. Kraus.—p. 1328. Conc'n.
"Treatment of Purulent Mastitis." N. Temesváry.—p. 1331.
"Migraine and Its Treatment." A. Zucker.—p. 1331.
Rare Changes in Infectious Endocarditis. K. Terplan.—p. 1331.
Pharmacology of Bismuth Compounds. F. Herzog.—p. 1333.
Obstetric Breviary. F. Eberhart.—p. 1336. Cont'n.
Recent Works on Insurance Medicine. P. Horn.—p. 1337.
Hygienic Aims of League of Nations. B. Möllers.—p. 1344.

Intracutaneous Injection.—Hoff believes in a special function of the skin in immunity. The stimulation of the vegetative system by intracutaneous injections does not explain their whole action. Small amounts of nonspecific proteins or even own blood are efficient in provocation of gonococci. Intracutaneous injections are advantageous in treatment of gonorrhea, arthritis and affections of the skin. On injecting a 1:50,000 tuberculin solution in the subclavicular region he observed a stronger reaction over the affected, than on the healthy side.

Localization of Center for Sleep.—Adler reports the history and necropsy findings in a patient who had died from infectious endocarditis. She was for fourteen days in a lethargic condition, which he attributes to an embolic abscess in the gray substance to the left of the third ventricle. This would confirm Mautner's theory on the localization of a center for sleep. There was also an affection of the right side and of the left hypothalamus and thalamus. The lesion may have blocked the sensory stimuli.

Sleep Centers in the Midbrain.—Hirsch concludes from an observation of his own and from two cases from the literature that both the medial part of the left optic thalamus and the gray matter near the nuclei of the motor oculi nerve are centers for sleep.

Septic Tonsillitis with Agranulocytosis.—Lauter publishes a case of streptococcus sepsis with ulcerated tonsillitis and agranulocytosis (almost complete absence of polymorphonuclears and myelocytes). Another patient, a young woman with agranulocytic tonsillitis and stomatitis, recovered—the first recovery reported in this condition.

Malaria Treatment of Neurosyphilis. — Scherber and Albrecht confirm the good results of malaria inoculation, followed by specific treatment, in general paralysis and tabes. The affections of the optic and auditory nerves and the pains were remarkably influenced. They use the treatment also in patients with changes in the cerebrospinal fluid even in the absence of clinical symptoms. The malaria infection procedure sometimes has to be repeated.

Adiposogenital Dystrophia.—Kraus reports on six cases of adiposogenital dystrophia. He agrees with the authors who attribute it to an affection of the anterior pituitary stalk-midbrain system. He believes that the absence of obesity in acromegaly may be due to a disturbance of the metabolism of carbohydrates caused by the eosinophilic adenoma.

20: 1347-1380 (Sept. 28) 1924

*Surgical Treatment of Asthma. M. Kappis.—p. 1347.
*Passive Resistance Protecting Life. Aufrecht.—p. 1351.
*Multiple Intestinal Tumors. K. Doppler.—p. 1353.
Isolated Tuberculosis of the Stomach. H. Schneider.—p. 1355.
Specific Treatment of Tuberculosis. A. Skutetzky.—p. 1357.
*Experiments on Insulin. J. Citron.—p. 1362.
Obstetric Breviary. F. Eberhart.—p. 1366. Cont'n.
Survey on Obstetrics. Liepmann and Brusten.—p. 1368.
Insurance Medicine. P. Horn.—p. 1370. Conc'n.
Medical Statistics in England. J. Breger.—p. 1378.

Surgical Treatment of Asthma.—Kappis states that he has treated a large number of asthma patients by resection of the right pneumogastric nerve below the recurrent laryngeal branch. The majority of his patients recovered or improved. Two had paralysis of the recurrent nerve, and one died after rupture of the subclavian artery caused by a moderate traction. He attributes the other failures chiefly to the psychogenous origin of the asthma.

Vital Importance of Passive Resistance in Disease.—Aufrecht believes that a too strong reaction of the organism may be more dangerous than the noxious agent causing the disease under treatment. He used morphin freely in cholera and dysentery to check the reaction of the organism, and attributes to this his success in desperate cases. He used it also on himself and his sister in an acute poisoning with canned cauliflower. Morphin reduces exudation, and is useful in pneumonia. Potassium bromid attenuates the nervous excitement in infectious diseases in children.

Multiple Intestinal Tumors.—Doppler describes a case of lipoma of the ileum, a carcinoid of Meckel's diverticulum and an adenocarcinoma of the colon in a man, aged 49.

Experiments on Insulin.—Citron induced by an injection of one or two units of insulin a critical lowering of the temperature in rabbits which had been made hyperthermic by Aronsohn-Sachs' puncture of the striate body. Addition of insulin to the fluid perfusing a frog's heart caused a slower action, less vigorous contraction, prolonged atrioventricular interval, and arrest in diastole. Atropin did not antagonize this phenomenon in the isolated heart. He believes that insulin stimulates the pneumogastric. He suggests that the diastolic standstill of the frog's heart offers a promise of developing into a method for titration of insulin.

Münchener medizinische Wochenschrift, Munich

71: 1347-1380 (Sept. 26) 1924

*Tuberculin by the Mouth. M. Klotz.—p. 1347.
*Corrigents. C. Bachem.—p. 1348.
*Decapsulation of the Kidneys. H. Kürten.—p. 1350.
*Syphilitic Cardiovascular Disease. Wittgenstein and Brodnitz.—p. 1351.
Biologic Diagnosis of Tuberculosis. H. Seidl.—p. 1355.
*Anemia of Infants. G. Ockel.—p. 1356.
*Blood Picture in Dysentery. C. Gottschalk.—p. 1358.
*Treatment of Prolapse of Rectum. Schotter and Lenebach.—p. 1358.
*Titration of Antidysentery Serum. S. Kondo.—p. 1360.
Semisolid Culture Medium. H. Schulten.—p. 1362.
Desmoid of Abdominal Wall. A. Ladwig.—p. 1364.
Definition of "Disease." A. Jarotzky.—p. 1365.
Heredity of Nevi. F. Lenz. 1365.
"Etiology of Nevi." Meirowsky.—p. 1365. Idem. Siemens.—p. 1366.
Specific Treatment of Tuberculosis. Blümel.—p. 1367. Cont'd.
Fight Against Tuberculosis in England. R. Güterbock.—p. 1369.

Tuberculin by the Mouth.—Klotz observed increased temperature and a reversion of the serum protein curve in infants after giving various tuberculins by the mouth.

Corrigents.—Bachem tested various drugs intended to correct the disagreeable taste of certain medicines. A 10 per cent. solution of secondary sodium phosphate was quite efficient in covering the bitter taste of phenobarbital. Synthetic fruit flavors also gave good results.

Decapsulation of the Kidneys as Shock Treatment.—Kürten believes that decapsulation of the kidneys acts as a nonspecific shock treatment.

Frequency of Syphilitic Cardiovascular Disease.—Wittgenstein and Brodnitz publish statistics on the incidence of syphilitic affections of the heart and blood vessels among 40,000 patients of Goldscheider's policlinic. Over 8 per cent. suffered from such affections, and one fifth of them were of syphilitic origin. Three quarters of the cases of aortic insufficiency were syphilitic. The average period of incubation was twenty years.

Anemia of Infants.—Ockel observed in infants regularly moderate polychromophilia which began in the second month and lasted through the first years of life. An increase of polychromophilia might solve the problem whether blood transfusion acts as a mere stimulus or as an actual substitution treatment.

Blood Picture in Dysentery.—Gottschalk found absence of eosinophils in the blood of thirty-one patients with dysentery, and a low percentage (up to 2 per cent.) in eleven patients.

Treatment of Prolapse of the Rectum.—Schotter and Lenebach inject milk into the sphincter ani in prolapses of children. They report perfect results in fourteen cases.

Titration of Antidysentery Serum.—Kondo prefers mice to rabbits in titration of antidysentery serums.

Wiener klinische Wochenschrift, Vienna

37: 937-1006 (Sept. 25) 1924

The Naturforscher Congress at Innsbruck in 1869. M. Mayrhofer.—p. 937.
Hay Fever. W. Berger.—p. 940.
*Fluid Exchange Between Blood and Tissue. E. T. Brücke.—p. 944.
*Value of Life of Fetus in Obstetrics. H. Eymer.—p. 946.
Intensity of Roentgen Spectrum. O. Fritz.—p. 950.
*Toxicology of Saponins. Gaisböck and Bayer.—p. 952.
History of the Giant Skeleton at Innsbruck. G. B. Gruber.—p. 954.
*Wound Management in Biliary Duct Operations. H. v. Haberer.—p. 960.
*Atropin as Stimulant of Sympathetic. L. Haberlandt.—p. 963.
*Immunologic Conception of Infections. H. v. Hayek.—p. 965.
*Oxygen Binding by Hemoglobin. M. Henze.—p. 970.
Pathogenic Action of Diplobacillus Liquefaciens Petit. F. v. Herrenschwand.—p. 970.
*Diagnosis of Retrobulbar Neuritis. H. Herzog.—p. 972.
*Strychnin Determination. C. Ipsen.—p. 974.
Tumor of Infundibulum with Cachexia. F. J. Lang.—p. 977.
*Roentgen Rays and the Organism. D. Lieber.—p. 979.
Typhoid Epidemic from Drinking Water. A. Lode.—p. 980.
*Reinfection in Measles. Loos.—p. 981.
*Roentgen Spectrum and Heat Radiation. A. March.—p. 982.
*Pulsating Musical Murmur in Head. C. Mayer.—p. 984.
Diverticulum in Esophagus. K. Montzka.—p. 986.
Meinicke Microreaction. V. Niederwieser.—p. 986.
*The Biliary Apparatus in Bacillary Dysentery. A. Posselt.—p. 987.
Mechanical Aspects of Joints in Larynx. S. Schumacher.—p. 993.
*Congenital Staphyloma of the Cornea. R. Seefelder.—p. 996.
Teaching Anatomy. F. Sieglbauer.—p. 998.
Roentgen Signs of Duodenojejunal Obstacle. K. Staunig.—p. 1001.

Fluid Exchange Between Blood and Tissue.—Brücke reports on Isayama's experiments on lymph production in frogs: If the flow of lymph into the blood is blocked by cauterization of the lymphatic hearts, the blood becomes rapidly inspissated. He estimates that about one third of the blood plasma becomes transformed into lymph within ten minutes. This would mean that the fluid of the plasma circulates about fifty times in the course of twenty-four hours, through the lymph and back. After a short time the blood becomes normal or diluted. He attributes this to a reflux into the capillaries. He believes that the formation of lymph may occur also much more rapidly in the homothermal than would follow from direct observations on fistulas of the thoracic duct. He believes that some regulation similar to that in frogs may prevent exact determination.

Value of Life of Fetus in Obstetrics.—Eymer objects to the common tendency to consider pregnancy as a complication of some disease—for instance, of pyelitis. The opposite is true. Abortion in pernicious anemia does not save the mother and kills the child. The mortality from valvular disease in pregnancy is scarcely more than 1 per cent. Only decompensated hearts are an indication for abortion, as likewise nephritis, especially with retinitis. Its use is doubtful in nervous and mental diseases. He never saw a case of pernicious vomiting which would have made abortion necessary. Stratz remarked in regard to tuberculosis as an indication for abortion, that the internist is too much afraid of the pregnancy and too little afraid of its interruption. It does not help, according to the authors he quotes. The so-called social indication is beyond the rights of the physician, and invites abuses. There are no foundations for any eugenic indication. He agrees with Stratz in the opinion that we are able to make only one single eugenically important diagnosis before the child is born, namely, of hydrocephalus.

Toxicology of Saponins.—Gaisböck and Bayer found that the irritative action of saponins on the bone marrow is not caused by hemolysis alone. Using mixtures of cholesterol and saponin, they confirmed Isaak and Mockel's findings. Although the cholesterol prevented hemolysis, the normoblasts appeared on the next day.

Wound Management in Biliary Duct Operations.—Haberer used a simple glass drain only in twenty-two of his last 105 cholecystectomies. The patient may get the benefits of complete suture of the wound more frequently than this is generally done. It is, however, an indispensable condition to work very carefully, to preserve as much as possible the hepatoduodenal ligament, and be sure about the ligatures. Surgeons who want to work rapidly and are heedless in regard to injuring the tissues must provide drainage.

Atropin as a Stimulant of the Sympathetic.—Haberlandt studied the action of atropin on the isolated frog heart. His experiments indicate a stimulating effect from it on the sympathetic terminal fibers.

Immunologic Conception of Infections.—Hayek expresses by the term "immunobiologic viewpoint" the tendency to consider an infectious disease from its very beginning and through its development as a pathologic vital process—not a mere pathologic change of the condition of the infected organism.

Oxygen Binding by Hemoglobin.—Contrary to Gamgee, Henze found hematin diamagnetic. He also studied the behavior of frogs' corpuscles in a strong magnetic field. There were no indications of any magnetic iron compound.

Diagnosis of Retrobulbar Neuritis.—Herzog rates the nasal etiology of retrobulbar neuritis at 10 per cent. Nevertheless it is important, because it can be treated. Opening of the ethmoidal cells is indicated. Cocainization of the nose (together with epinephrin) reduces the edema and has a decidedly curative action. The neuritis begins in these cases as a circumscribed meningitis. He discusses the frequency of multiple sclerosis in the etiology of the affection.

Strychnin Determination.—Ipsen publishes two instances of murder by strychnin, which show that the bitter taste does not prevent its criminal use. He deals with the difficulties of its determination in the dead body. It may be impossible to prove its presence if the body is in decomposition.

Roentgen Rays and the Organism.—Lieber believes that the roentgen rays disturb Donnan's physical-chemical equilibrium at the cell membranes.

Reinfection in Measles.—Loos does not believe in a reinfection with measles. He publishes three cases which seemed to be instances of reinfection, but he ascertained that one of the two children had had rubella the first time; the other child had been out of town while her eight brothers and sisters had measles, and the third case was a drug exanthem during an attack of influenza.

Roentgen Spectrum and Heat Radiation.—March considers the roentgen rays as heat radiation of extremely short wave lengths. Applying Wien's law, he finds that the temperature necessary for this would be at least 160 million degrees. This seemingly impossible temperature is realized in those points of the anticathode where an electron collides with an atom. He estimates this temperature at 800 million degrees.

Pulsating Musical Murmur in Head.—Mayer describes a continuous murmur which was perceptible at a distance of 1 cm. from the skull of a boy who had been injured on the head two years before. The murmur was strongest when the head was turned. It disappeared during compression of the right carotid, but increased under compression of the left.

The Biliary Apparatus in Bacillary Dysentery.—Posselt found complications on the part of the liver, biliary ducts and gallbladder not infrequently in and after bacillary dysentery.

Congenital Staphyloma of the Cornea.—Seefelder examined histologically the eyes of an 8 days old kitten with congenital staphyloma of both corneas. There were distinct indications of an inflammatory origin for the abnormality.

Zentralblatt für Gynäkologie, Leipzig

48: 2106-2168 (Sept. 27) 1924

Left Tubal Pregnancy with Obstructed Right Tube. Fischer.—p. 2106.
*Menses and Fetal Development. Szenes and Mondré.—p. 2110.
Backache in Gynecology. R. Joachimovits.—p. 2118.
The Controversy on Kielland's Forceps. K. Fink.—p. 2123.
Serodiagnosis of Sex in Pregnancy. W. Oppenheimer.—p. 2125.
*Roentgen Rays in Bartholinitis. H. Sieber.—p. 2126.
Economy in Use of Catgut. M. Blumberg.—p. 2132.

Duration of Menses and Development of Fetus.—Szenes and Mondré's research on 739 healthy women showed that those with more prolonged menses gave birth to heavier and taller infants. It may be explained by retention of larger amounts of nutritive substances during the pregnancy, due to exceptional secretion of hormones, especially of ovarian hormones, in these women.

Roentgen Rays in Bartholinitis.—Sieber obtained good results in a case of gonorrheal bartholinitis treated with roentgen rays. The gonococcus disappeared after the second irradiation, and the gland does not seem to have been injured. The rays do not destroy the coccus, but promote its elimination.

Nederlandsch Maandschrift v. Geneeskunde, Leiden

12: 493-564, 1924

*Diagnosis of Pregnancy. P. C. T. van der Hoeven.—p. 495.
*Inversion of the Uterus. N. Roegholt.—p. 504.
Missed Abortion C. Koek.—p. 512.
*The Exudative Diathesis. G. C. Bolten.—p. 518.

Diagnosis of Pregnancy.—Van der Hoeven describes the various biologic tests in vogue, adding that none is specific for pregnancy. Negative findings do not exclude pregnancy.

Inversion of the Uterus.—Roegholt says that inversion of the uterus at childbirth is comparatively common in the Netherlands East Indies from traction on the cord. In one such case, the inversion of two months' standing, with almost constant bleeding, he reduced the uterus through a laparotomy, under presacral anesthesia, by working two fingers of his left hand down under the inverted fundus, round about the vagina, pulling at the same time on the ligaments that filled the funnel formed by the inversion. The procedure was like that used in correction of insussusception, and was promptly successful, without danger of injury from traction with forceps, and without assistance.

The Exudative Diathesis.—The title of Bolten's article is "Exudative Paroxysms," and he tabulates the findings in twelve adults with transient angioneurotic edema or equivalents. All but two in this group presented other neuropathic manifestations. He cites patients and families that show a bewildering array of these exudative syndromes, but all seem to respond, he says, to accelerating hormones (thyroid, epinephrin), which sustains his theory that the exudative instability is due to insufficiency of the sympathetic nervous system. Among the examples he describes is a case of recurring fleeting edema of the cortex, fatal at the second attack. Angioneurotic edema is also one of the seven main causes of genuine asthma.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1347-1466 (Sept. 13) 1924

*Prognosis of Tuberculosis in Infants. C. van Dam Stokkink.—p. 1348.
Atypical Bacillary Dysentery. Lichtenstein and van Steenis.—p. 1359.
*Hypothesis of Origin of Mole. G. C. Nijhoff.—p. 1371.
Posttraumatic Changes in Cornea. J. A. van Heuven.—p. 1381.
Defects in Skin and Bone in New-Born Infant. Garé.—p. 1391.

Prognosis of Tuberculosis in Infants.—Stokkink relates that 87 per cent. of the 144 tuberculous infants in the Emma Hospital died within the first year of life. Of seventy infants from tuberculous families, 74 per cent. died, a smaller proportion than the 81 per cent. mortality in the group of eleven infants from nontuberculous parents.

Origin of Hydatidiform Mole.—Nijhoff ranks mole with the disturbances resulting from abnormal cytoclesis, the "call from cell to cell, a call of ancestrous memory." Ariens Kappers' term for this general phenomenon of cell call is neuro-bio-taxis. When the tubules, etc., fail to meet end to end, then they dilate with their own secretion into cystic formations. The most striking manifestation of failing cytoclesis is found in congenital cystic kidney.

Hygiea, Stockholm

86: 481-528 (Aug. 15) 1924

Treatment of Congenital Syphilis in Children. G. Ahman.—p. 481.
Experiences of an Ophthalmologist in India. F. Kugelberg.—p. 491.

86: 529-560 (Aug. 31) 1924

Cripples in Sweden. A. G. Wide.—p. 529. Cont'd.
Technic for Orthoradiography. G. Backman.—p. 550.

Norsk Magazin for Lægevidenskaben, Christiania

85: 705-808 (Sept.) 1924

Study of Cerebrospinal Fluid. J. Lofthus.—p. 705.
*Infantile Scurvy. L. Nicolaysen.—p. 717.
Cancer of Liver in Boy Infant of 20 Months. Idem.—p. 719.
*Acute Fatal Myocarditis. S. K. Mørdre.—p. 722.
*Rupture of Pubic Symphysis. G. Schaanning.—p. 726.
*Vitamin Content of Bananas. Eva Sopp.—p. 732.
Peptic Jejunal Ulcer. C. Rosing Bull.—p. 736.
Intermittent Hydrops of the Knee. N. Paus.—p. 760.
Appendicitis Simulating Adnexitis or Cholecystitis. Idem.—p. 762.
*Surgical Tuberculosis. Idem.—p. 764.
*Research on Diabetes Insipidus. K. Motzfeldt. Supplement, pp. 1-111.

Scurvy in Infants.—Nicolaysen knows of only six instances of infantile scurvy that have been published in Norway. He thinks it probably escapes recognition in many cases.

Acute Interstitial Myocarditis.—The man, aged 41, died the sixteenth day after the onset of the acute heart disease. It proved to be a primary diffuse interstitial myocarditis, the myocardium infiltrated with lymphocytes. The liver showed a slight tendency to alcoholic cirrhosis.

Rupture of Pubic Symphysis.—Schaanning reports a case of rupture of the symphysis from a slip on the street, the woman nearly at term with her first pregnancy. A temporary plaster cast was applied to support the pelvis during labor, which began two or three days later. There was a history of fracture of arm or leg or coccyx at falls during childhood or youth. In two other cases the rupture of the symphysis occurred during forceps extraction. The ruptures healed in all the cases without impairment of function, but there is still a gap. He seems to think that this is rather an advantage for future pregnancies as the rupture occurred under aseptic conditions.

Vitamins in Bananas.—Sopp reports that the growth of twenty-five young rats fed on bananas indicates the presence of vitamin A. The animals regained their health on 1 or 2 gm. or unlimited amounts of bananas daily, after having developed xerophthalmia and other deficiency disturbances from lack of vitamin A.

Surgical Tuberculosis.—Paus emphasizes that experience and the newer achievements with sunlight, outdoor air and nourishing food all confirm the importance of institutional treatment for bone and joint tuberculosis. Only in institutions can rest be imposed properly and other measures be applied as indicated.

Diabetes Insipidus.—Motzfeldt's monograph has ten pages of bibliography, and presents the present consensus of opinion on the disease. Weil's patient had had polyuria from infancy, and lived to the age of 92. Even with a cyst over the sella turcica, survival of thirty years has been known. A spontaneous cure may occur, especially in the nervous form of diabetes insipidus, and a cure under treatment for syphilis is not uncommon. He does not think there is much prospect for a cure under pituitary treatment unless the doses are much larger than those used to date. He has had good results with fresh beef pituitaries, seven a day. The pituitary extract treatment can be kept up for months without toxic action. Intravenous administration should never be attempted, as this may entail fatal collapse. Where good results have been observed under pituitary treatment, the polyuria was probably of nervous origin, but the general health and growth are frequently materially benefited by it. No authentic instance is on record of transition into true diabetes mellitus.